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WE have not found that gratification or satisfaction in the perusal of Mr. Ruskin's recently published pamphlet, "Pre-Raphaelitism,"* which we expected. It is scarcely necessary to say that it is intended as a defence of the works of a certain number of young artists who have called themselves Pre-Raphaelite Brethren, and have gained very considerable notoriety by the peculiar character of their works. In his preface the writer says,—

"Eight years ago, in the close of the first volume of 'Modern Painters,' I ventured to give the following advice to the young artists of England:—'They should go to Nature in all singleness of heart, and walk with her laboriously and trustingly, having no other thought but how best to penetrate her meaning; rejecting nothing, selecting nothing, and scorning nothing.'"

This, the author says, has at last been carried out by the P. R. B.'s, and their works having been attacked, he comes forward, as a matter of course, in support and exaltation of them. More than half the pamphlet, sixty-two pages in all, is devoted to eulogistic comments on the works of Turner. In appreciation of Turner's genius and admiration of his works we go hand in hand with the author of "Modern Painters;" but we fail to discover the ground on which Mr. Ruskin seeks to connect him with the school in question. He surely is not amongst those who "select nothing?" He has walked with Nature laboriously, and sought to penetrate her meaning, but it was to select her beauties, fix her transient effects, and, knowing what is, show what *might* be.

Mr. Ruskin sets himself against those who would better their position in the world: don't look up, says our author, look *down*, and you will find your right place at last. Very likely,—*facilis descensus*, &c. "People usually reason," he writes, "in some such fashion as this: 'I don't seem quite fit for a head manager in the firm of —— and Co., therefore, in all probability, I am fit to be Chancellor of the Exchequer.' Whereas, they ought rather to reason thus: 'I don't seem quite fit to be head manager in the firm of —— and Co., but I dare say I might do something in a small greengrocery business: I used to be a good judge of pease;' that is to say, always trying lower instead of trying higher, until they find bottom: once well set on the ground, a man may build up by degrees, safely, instead of disturbing every one in his neighbourhood by perpetual catastrophes." It is easy to go down, there is no doubt; less easy to get up again. As Dryden paraphrases Virgil,—

"Smooth the descent, and easy is the way,
But, to *return*, and view the cheerful skies,
In this the task and mighty labour lies."

Yes, but why labour, says Mr. Ruskin: the hope of doing great or clever things by great efforts is as vain as it is pernicious:—

"I say it is a vain hope, and let the reader be assured of this (it is a truth all-important to the best interests of humanity),—*no great intellectual thing was ever done by great effort:* a great thing can only be done by a great man, and he does it *without* effort. Nothing is, at present, less understood by us than this—nothing is more necessary to be understood. Let me try to say it as clearly, and explain it as fully as I may.

I have said no great *intellectual* thing: for I do not mean the assertion to extend to things moral. On the contrary, it seems to me that just because we are intended, as long as we live, to be in a state of intense moral effort, we are *not* intended to be in intense physical or intellectual effort. Our full energies are to be given to the soul's work—to the great fight with the Dragon—the taking the kingdom of heaven by force. But the body's work and head's work are to be done quietly, and comparatively without effort."

And, again, he says it should be understood that,—

"If a great thing can be done at all, it can be done easily; that, when it is needed to be done, there is perhaps only one man in the world who can do it; but *he* can do it without any trouble—without more trouble, that is, than it costs small people to do small things; nay, perhaps, with less. And yet what truth lies more openly on the surface of all human phenomena? Is not the evidence of ease on the very front of all the greatest works in existence? Do they not say plainly to us, not, 'there has been a great *effort* here,' but, 'there has been a great *power* here?' It is not the weariness of mortality, but the strength of divinity, which we have to recognise in all mighty things; and that is just what we now *never* recognise, but think that we are to do great things, by help of iron bars and perspiration. Alas! we shall do nothing that way but lose some pounds of our own weight."

This doctrine, notwithstanding some qualifying remarks, seems to us as dangerous as it is untrue. "The evidence of ease" may be "on the front of all the greatest works in existence," but it is the ease which results from previous effort: the practised soldier does with ease what costs the recruit sore labour. A great effort at one period of life is needed, and then much may be done with ease. Should an artist be taught that because he cannot now produce a work of mind calculated to charm, soothe, elevate, or instruct, he is to use no efforts to obtain that power, but quietly resign himself to make faithful representations of existing objects? This is very desirable as a means,—very necessary as a first step; but other ends must be set up and other studies superadded if we would develop artists. "A portrait-painter," says Reynolds, "when he attempts history, unless he is upon his guard, is likely to enter too much into detail. He too frequently makes his historical heads look like portraits; and this was once the custom amongst those old painters, who revived the art before general ideas were practised or understood. A history-painter paints man in general: a portrait painter a particular man, and, consequently, a defective model. Thus a habitual practice in the lower exercises of the art will prevent many from attaining the greater." And then elsewhere the same elegant writer says,—"On the whole it seems to me that there is but one presiding principle, which regulates and gives stability to every art. The works, whether of poets, painters, moralists, or historians, which are built upon general nature, live for ever; while those which depend for their existence on particular customs and habits, a partial view of nature, or the fluctuation of fashion, can only be coeval with that which first raised them from obscurity." The great aim of the painter is, as it seems to us, to deduce from the study of the accidental and particular, the general and the infinite;—to set forth the beautiful, to gain honour for the good. As a course of training, or beginning in art, the minute transcript of nature attempted by the Pre-Raphaelites is calculated to be serviceable, and one, at all events, amongst them, if he be not detained in a practice and a *manner* by the erroneous exaltation of them into excellencies,—if he be not stayed in what ought to be a progress, and led to think he has reached the goal when he has but started in the race,—will make a great artist. Their energy, resolution, and earnestness have our warm praise; but their expressed avoidance of beauty, the apparent selection of improper models to avoid the appearance of any selection, and contempt for that knowledge which is to be gained from the works of the wonderful painters of the 16th century, are errors which ought not to be supported by those who are interested in the progress of the English school of painting.

"All the elements," says Kugler, "which had existed apart from each other, and had composed distinct styles in the periods hitherto considered, all the qualities which had been successively developed, each to the exclusion of the rest, but which in the aggregate fulfilled the conditions of a consummate practice of art, were united about the beginning of the sixteenth century. This union constituted a most rare and exalted state of human culture—an era when the diviner energies of human nature were manifested in all their purity. In the master-works of this new period we find the most elevated subjects, represented in the noblest *form*, with a depth of feeling never since equalled. It was only for a short period that art maintained this high degree of perfection—scarcely more than one quarter of a century! But the great works then produced are eternal—imperishable. They bear, indeed, the stamp of their own age, but are created for all ages; and as they were the pride and admiration of the time when they were produced, so they will awaken the enthusiasm of the latest posterity. For the truly beautiful depends not on external or local circumstances: the Madonna di S. Sisto of Raphael, the Heroes of Phidias, Leonardo's Last Supper, and Scopas's group of the Niobe and her Children, belong not exclusively to Catholic Italy, nor to heathen Greece. In all places, in all times, their power must be felt, and must produce its impression on the heart of the spectator."*

The name assumed is not a wise one. Vasari exclaims at the close of his biography of Raphael, the greatest of painters,—

"O happy and blessed spirit! every one speaks with interest of thee; celebrates thy deeds; admires thee in thy works! Well might painting die when this noble artist ceased to live; for when his eyes were closed she remained in darkness. For us who survive him it remains to imitate the good, nay, excellent method which he has left us for our guidance; and as his great qualities deserve, and our duty bids us, to cherish his memory in our hearts, and keep it alive in our discourse by speaking of him with the high respect which is his due. For in fact through him we have the art in all its extent, colouring, and invention, carried to a perfection which could hardly have been looked for; and in this universality let no human being ever hope to surpass him."

Those artists who intend to remain Pre-Raphaelites intend to remain behind the farthest point to which art has been advanced. It is as if the makers of steam-engines were to determine on being Pre-Wattites, and to deal with the subject only as it stood before Watt touched it. Nature is the great and true field of study; but the mere study of nature without

* Smith, Elder, and Co.

* Eastlake's edition.

knowledge of what to select, will not lead to the production of fine works. To avoid the error of ugliness, deformity, and unfitness, a standard is needed to guide us; and this standard can only be gained, the shortness of life being considered, by the study of the works of the great masters who have gone before.

THE SAXON QUESTION.

AN ACCOUNT OF REPTON PRIORY AND CHURCH.*

THE pleasure of antiquarian research, particularly into those matters which relate to architecture, is ever attended, as are most of the things which delight us, by some care. The fear that, after the most lengthened inspection, the most accurate comparison, the most careful measurements, the most laborious research among books and manuscripts, some little circumstance may have been overlooked, some short passage unnoticed, or some unusual character misread, gives anxiety and care to what otherwise is to an educated mind the most delightful as well as useful and instructive of human pursuits. It is for this reason we so frequently complain of the short period that has been allotted to our labours, and we wish we had had more time to bestow upon them, not from habits of procrastination or irresolution, or by the way of excuse for the little we have collected, but simply because we dread there is yet something behind we have not seen—some valuable fruit we have not plucked. But when, as in my own case, I explain that my time has been too short in every sense, as I understood this task would have been undertaken by another member, I trust you will understand how much anxiety I must feel from the reasons I have assigned, and hope that any error I may make will meet with kind excuse and gentle criticism.

I feel it the rather as this building is far more curious and interesting than I had at all anticipated, and as its investigation must lead to the discussion of theories the most important, and as yet uncertain in this branch of archæology. It is to be regretted that they have been discussed with much prejudice, hastiness, and acrimony. Some of the greatest men have been arrayed on each side of the question—the arguments on both sides are of the greatest weight—and I could almost reproach myself with presumption for attempting it to day. But it is my intention to endeavour to enter into the subject as a calm inquirer, and if I can add anything to the facts, or throw any light upon the dark corners of the case, I shall congratulate myself in having added my mite to the most interesting branch of architectural archæology.

The history of the foundation of this religious house is necessarily obscure, as all documents seem to have perished at the dissolution. It could not, of course, have existed before the conversion of Mercia to Christianity. This happy event commenced about A.D. 653. Peada, the fifth king, son of the warlike Penda, became attached to Alcfleda, daughter of Osweo, king of Northumberland, and having been instructed by her in the doctrine of the Christian religion, he was baptized, and married the princess. (Ven. Bede, iii., cap. 21.) Peada brought from Northumberland with him four priests to assist in the work of conversion; one of whom, Diuma, was consecrated the first bishop of Mercia, and died in 655, and was buried "in regione quæ vocatur Infeppingum." This has been conjectured with considerable show of reason to be the ancient name of Repton, which is afterwards variously given as Rependun, Repandune, Hreopandun, and Reppington. If this conjecture be correct, this church must have been founded at that time, and probably was the first Christian church in Mercia. Our first positive notice of its existence as an ecclesiastical building is found in the celebrated Liber Eliensis, lib. i. cap. 6, where it speaks incidentally of Adulph, the king, whose daughter, Ædburga (or, as it varies in the copies, Ætburga, or Redburga), was abbess of Rependune, and who sent to Guthlac (afterwards canonized) the somewhat sombre gift of a leaden coffin, and a linen shroud. The same facts are given in Leland, Coll. i. 190, where he calls the lady Edburga. It must be with no small pride, the present inhabitants of the noble county that was once the kingdom of Mercia can regard an origin dating 1,200 years back. It will be for us to consider presently whether any part of the building be of that remote, most remote, antiquity. If it be so, we here have probably (now that it seems likely that St. Martin's, at Canterbury, has been rebuilt) the oldest building remaining in England, not excepting perhaps portions of the crypts at York.

The next mention we have of Repton is also preserved by Leland, Coll. ii. p. 278, where he states that Guthlac entered the monastery at Rependune, and then received the tonsure and clerical habit under the Abbess Alftrytha. The town and monastery seem now to have risen to great importance. The latter in particular seems to have become the Westminster Abbey of Mercia. Leland has preserved records (Coll. ii. p. 264) that S. Wistan, the son of one of the kings of Mercia, was buried there, "at that time," he says, "a famous monastery;" and that afterwards his bones were translated to Evesham. In 755 the Saxon Chronicle tells us that the warlike Ethelbald, who was killed treacherously by one of his own chiefs at Seccandune, was buried here. In 786, according to Thos. Rudborne, Ang. Sac. i. 196, Kynechard, the brother of Sigebright, King of Wessex, was also interred there, as well as Meruell, of whom he says,—"the body rests, as they say, at Repedune, a monastery formerly sufficiently noble for the residence of celebrated men and holy women; which place, according to its etymology, seems not to be silent as to the excellency of the king, for it seems to signify (sounds) the manipulus of a mountain. We get no more mention of Repton till 879, when the struggle took place between the King of Mercia and the Danes, who expelled from his kingdom Burrhed, who retired to Rome, where he died.

The Danes occupied the towns, and wintered there; and according to Ingulf, then destroyed the monastery. It seems curious that Matthew of Westminster, the Saxon Chronicle, Ethelwerd, and Roger of Hovenden—all of whom describe the occupation of the town by the Danes—should be silent as to the destroying the monastery. Ingulf alone relates its ruin, and designates it as "the most celebrated monastery, the most holy mausoleum of all the kings of the Mercians." From all these combined testimonies, we must have the highest character of the sacredness of the monastery, which then appears to have been an institution both for monks and nuns, but under the chief rule of an abbess. Whatever destruction the Danes may have made, it is clear the church was not destroyed, or if destroyed it was immediately rebuilt; for the Doomsday Book says, "In Rependune and Middletune, Earl Algar has six carucates, &c. &c. Here is a church and two priests with one carucate of land."

This is all we hear of the building till 1172, when from a charter in the possession of the Ferrers family we read, that "Ranulf, called Gernons Earl of Chester, died the 17th of the kalends of January in the year 1153, the 18th of King Stephen; which Ranulf took to wife Mathilda, daughter of Robert Earl of Gloucester; which said Mathilda founded the priory of Rependune in the year of the Holy Trinity 1182, the eighteenth year of Henry II., which Mathilda died the 4th of the kalends of August, 1189." It appears that eleven years previously this lady had founded a priory for Austin Canons at Calk, and that in truth she removed them to Repton, leaving Calk as a small monastery or cell to Repton. We learn this from a charter fortunately preserved by the Harpur family, of Calk, and copied by Dugdale in 1664. It is addressed to Walter Bishop of Coventry, and concedes to the priory at Calk the quareria of Rependune on Trent, with the advowson of the church of St. Wistan, at Rependune, but on condition that the convent there shall be the head, and that as soon as fit opportunity should arrive Calk should only be a member thereof, and remain in its diocese. The charter is confirmed by another of Hugh Earl of Chester—without date. It appears from some documents cited by Morant in his History of Essex, that Mathilda also gave to Repton the advowsons of Great and Little Baddow, in that county; but little now is extant referring to the history of the building, although there are very numerous casual notices scattered through the different manuscripts in the British Museum. In the Harl. MS. 2044, we find that Sir W. Patrick granted an income of 200 shillings per annum arising from one of his mills, and shortly after the Prior of Repindune brings an action against his successors for the amount, and the marginal note says he "triumphed over him." We also read of several gifts of land "*pro salute animæ*," at different periods.

At last the storm that had been so long gathering burst on the monasteries, and Repton was seized by the king, its moveable possessions sold by the commissioners, and the land granted to the Thacker family. I hold in my hand a long and very curious list of all the goods thus appropriated, including the sum of 122*l.* 17s. 6d., which the list says had been embezzled by two of the monks, willing, no doubt, to save what they could out of the fire. The buildings seem to have consisted of a church containing the chapels of St. John, Our Lady, St. Nicholas, Our Lady of Pity, and St. Thomas, a vestry, a cloister, chapter-house, dortour, fratery, hall, buttery, Prior's chamber, inner chamber, gardyn chamber, and another next to it; the hall chamber, the high chamber, the kitchen, larder, brew-house, ale-house, boulting-house, and kiln-house; the total value of all moveable goods therein being 162*l.* 19s. 6d.

Our next mention of the priory is in old Fuller, who tells us that Thacker, to whom the priory had been granted, hearing that Queen Mary was about to restore the monasteries, collected all the workmen he could, though on a Sunday, and pulled the church down, saying he "would destroy the nest, lest the birds should build therein again." "Church work," says Fuller, "is a cripple in going up, but rides post in coming down."

It now remains for us from these combined records to examine the work, and endeavour, if possible, to fix its date.

I have already adverted to the tone in which some disquisitions on this subject have been carried on, and deprecated for myself any bias or intention to pervert the facts or draw any inferences that are not fair. I can hardly wonder at the harsh things which have been said on one side. At one time a single and simple canon was laid down, and will be found printed in some of the early volumes of the Archæologia,—any circular arch was (*ex cathedra*) Saxon, every pointed arch Gothic. Now, for any man who could read a Latin charter to be told that the cathedral of a bishopric, founded a hundred years after the Conquest, or a church built by one of Henry the Second's court, was Saxon, was rather too much; and when investigation after investigation showed that hundreds of most decided Norman examples had been registered as the works of the kings of the Heptarchy, it is not to be wondered at that the critics of the period grew hasty, and were disposed to knock down the Saxon advocate without much inquiry, and this has literally been the case lately. It appears to be the pride of some critics to forget that their ancestors ruled England for between four and five hundred years in wealth and prosperity, with almost superstitious feelings in religion, and with a literature not perhaps very refined, but certainly anything but irreligious; and yet that they did not build one church that remains to us, though hundreds which were confessedly commenced some twenty years after their dynasty had expired, have stood now nearly 800 years, and are likely to stand 800 more. While their seniors by a dozen years are supposed to have vanished long ago — *tenues secessit in auras*. The two great errors in archi-

* The following interesting paper, which we recommend to the consideration of our readers, is a full report of an address delivered by Mr. Ashpitel at the recent meeting of the British Archæological Association.

tectural critics have been these: they have formed two distinct sections—the draughtsman and the black-letter men: the two qualities are very seldom united in one person: the consequence has been, each party has brought preconceived notions to the field; and while one has laughed at the charter or chronicle as contradicting his views, the other has extended its evidence, and made it invade territories it never was entitled to possess.

Thus, while I have heard many claim a building as a Saxon church—whilst we have evidence of a first-rate chronicler that the Saxon building stood to the south, and was fairly pulled down when the new Norman building was finished on the north side—I think we ought to see whether the medal has not in some cases a reverse. For instance, I read that Waltham Abbey was built by Harold, who was interred there after his death; that the Conqueror deprived the monks of their wealth; that they got on as well as they could till the restoration of the Saxon line, when quite another school of architecture was in vogue; and yet I see in a most respectable publication this most unlikely criticism:—"Waltham, no doubt, built by Harold; yet the present church appears to be Early Norman." The inference is, that the monks, who at the time had not a groat to spare, pulled down a new church to build another new church in its site, of just the same size and style. Let us look at St. John's, at Chester:—we read that was the original cathedral church, and was completely renewed by Leofric, Earl of Chester, about six or eight years before the Conquest. Our next architectural annal is, that a fire occurred early in the 13th century. We see the architecture of two periods instantly, the one Early English work; and we see an older work, which has stood at least eight centuries, and is likely to stand eight more. Is it absurd, then, to take a stand on the written document, and doubt whether the elder part was not Saxon work? Again, let us look at Pershore: there we have a record that the old abbey, founded by Edgar, was burnt down, and that it was rebuilt, and public service commenced in it in the year 1002, only sixty-four years before the Norman conquest; a very great age for a Regent's-park cottage, but a mere baby-hood for the noble fabrics erected at that time. Well, the next item in the Chronicles which have been carefully preserved by Leland, relating to the architecture, is, that part was burnt in 1223. We enter the building, and see two periods of work in a moment,—one clearly Early English, another earlier. What is the earlier? Are we to believe the Chronicle, or to say, No: there was some spell about the Norman invaders: they pulled down all churches, new or old, and rebuilt them in precisely the same style, just for the pleasure of doing so? In the case of Pershore there is a strong argument they would *not* do so, as we learn that they were in a great state of poverty, the larger part of their property having been transferred to the new Abbey of Westminster by the Confessor, and after him by the Conqueror. Surely they who rely so strongly on the Chronicles in the cases of Ely, St. Albans, and Westminster, will allow us common sense if we pause over them in other cases. Let us remember there was no sudden departure in style. The Normans were men of the same race and the same religion. We must not look for such changes as we see in India, where the mosque marks the advent of the Mussulman, and the church the rule of the Englishman, while the old Hindoo Temple stands by with its *own* distinctive features. Both Norman and Saxon must have had one common stock, the original Roman, and the later departure from even that style was not so great but there necessarily must have been great similiarity between them.

Some writers have cut the knot instead of untying it, and said boldly that the Saxon churches were all of wood, like the little church of Greensted, in Essex; and they quote from the charter of King Edgar (A.D. 973) given by William of Malmsbury, in which he states his intention of "rebuilding all the holy monasteries in the kingdom, which are visibly ruinous, with moulding shingles and worm-eaten boards—even to the rafters." But though a great many buildings might have been of wood, we have positive proof that for many years a great many had been built of stone. Exactly 501 years before the Conquest the Church of St. Martin, at Whitehorn, was built, says Bede (iii. c. 4), of stone, an unusual method among the Britons. In 627 Paulinus built a large and noble church of stone at York, and in the next year a stone church of beautiful workmanship at Lincoln. In 652 St. Finan built the church at Lindisfarn. "Nevertheless," says Bede, "he made it after the manner of the Scots, *not* of stone, but of hewn oak." Surely this exception. "after the manner of the Scots," would prove rather that the manner of the English was different. In 655, the monastery of Medehamstede was begun of "most immense stones." In 660, Lastingham was built of stone. A few years after, we meet with a curious passage in Bede, who states that Benedict Biscop was about to build the monasteries of Wearmouth and Jarrow, and that he crossed the sea and brought back with him masons to build him a church "in the Roman style," which he had always admired. He also brought with him makers of glass, who taught their art in Britain, which had not been known there before. It would weary you to run through all the recorded cases of *stone* churches for the next 400 years preceding the Conquest: suffice it to say, that in 674, we first meet with the expression, "polished stone," as used at Ripon and Hexham. Within the last century preceding the Conquest, Ely, Peterborough, London, Westminster, Winchester, Worcester, the White Church at Durham, Bury St. Edmunds, St. Mary's Coventry, Stow, Wenlock, Leominster, Aldborough, Spalding, Gloucester, Pershore, Waltham Abbey, and many more no doubt, which I have not had time to reckon, were built, and almost all these of stone. So much for the sweeping assertion that the Saxons did not and could not build stone churches.

The arguments relative to Saxon and Norman architecture have been something like those of Zeal-of-the-Land-Busy, in Ben Jonson's inimitable comedy, where the two disputants keep on for a quarter of an hour,—"It is." "It is not." "It is." "It is not." Each person maintaining his own ideas, but giving marvellous little evidence for what he says. Let us endeavour to get some proof *aliunde*, and not rely too much on our own notions. First, let us examine several arguments that have been used, which do not seem to me to be conclusive ones.

We are told that Saxon work is much rougher than Norman, and is not ornamented. This may be so to some degree; but surely those who could execute such elaborate diagrams as we see in the Saxon MSS. could set them out for the workmen to copy, and if we judge from their arms and jewellery, they had no contemptible workmen. In one particular, which has been often quoted—the carving of fretwork—this must have been used by the Saxons, as the very word they used to express ornamentation is gefrætwan. Besides this, we are told again and again, that the Saxons built of polished stone. Again, I can hardly suppose that wide joints are a distinctive mark. A celebrated authority has shown that there are wide joints in many decidedly Norman buildings. In fact, it appears to me that the execution of work of all kinds depends very much on the nature of the stone. If it were a hard substance not readily cut, except by the axe, it is probable that the joints would be rougher and wider than where the material could be cut by the saw. By the way, it is also probably a mistake to say the Saxons were ignorant of the use of the saw: at any rate, they have three distinct words to express that useful instrument. In the same way, I consider that the quality of the mortar is not a sufficient test: this depends very much on local circumstances, in fact, on the quality of the material from which it is burnt. Neither do I think the smallness of the stones to be a criterion. Hugo Candidus expressly tells us that Medehamstede, or "Peterborough," was built of most immense stones, "*immanissimi lapides*."

The *probable* tests may be considered to be these:—Saxon work resembles classic Roman more than Norman work. The former succeeded their polished conquerers of the world, and no doubt entered their houses, where the fountains played in the impluvium, surrounded by columns of classic form. The whole land must have been full of arcades, vaultings, hypocausts, zysti, amphitheatres, and all the borrowed glories of old Rome, and would have given direct examples to their successors—while Norman art must have come through Gallic sources, and most probably was in some way tinged with intermediate peculiarities.

Another and a safe test will be to find peculiarities that do not exist in acknowledged and accredited Norman work, and yet which are not Roman. The latter is easily recognised by its superior workmanship, and identity with classic forms. If early work be not Roman nor Norman, what else can it be but Saxon?

But a still better test is the comparison with the delineation in contemporary MSS. Like the sculpture of Nineveh, or the tombs of Egypt, these drawings will best exhibit the every-day life; the costume and dwellings of the period.

What, then, are the peculiarities on which we can probably best rely? Quoins composed of pieces alternately long and short; round staircases of a peculiar form, on the outside of towers; short pillars resembling turned balusters; arches (so to speak) of triangular form; rude imposts, and pilasters formed of stones so narrow as to look like mere strips. With the two first we have nothing to do in this instance. Let me now call your attention to the illustrations of some undoubted Anglo-Saxon MSS., particularly the celebrated Pentateuch of Ælfric, and the well-known Harleian MS. 603.

There you have the turned balluster columns—the alternate, round, and triangular arches—in instance after instance. Let us now turn to St. Peter's at Barton-upon-Humber: we have these characteristics exactly, as also the strip pilasters. The same character is found in the Tower of St. Bennet's at Cambridge, as a most cursory inspection will show: this has a small portion of strip pilasters also. It is to this last peculiar feature I now beg to call your attention. Every one must recollect the ordinary classic pilaster fronts. The girders of the floors or the principals of the roofs are placed over them, and the walling between them is of less thickness, and, of course, lighter than it otherwise would be. As classic art declined, the same external appearance was attempted, but in a very different proportion. There are very many examples, but the one in the diagram referred to is from S. Pietro in Cielo d'Oro, and was built at Pavia in 750.

In the inside, at Repton, are two curious, rude imposts: they also strongly resemble those at Worth Church, of great antiquity, and which has always been considered Saxon, and those at Stoke D'Abernon.

The most curious and interesting feature is the crypt. These singular additions to ecclesiastical edifices no doubt derived their origin from the circumstance that during the persecution the early Christians availed themselves of the catacombs, which abound as much under old Rome as they do now at Paris. One of the most celebrated is given in the diagram. The remembrance of these sufferings was maintained by erecting these crypts, and till the middle of the thirteenth century no large ecclesiastical edifice seemed complete without them. They were used for all solemn services, particularly burials. The latest ecclesiastical crypts are, perhaps, those at Rochester. The earliest are probably those under our notice. They evidently are copies of Roman work: each column has a diminution and a swell, or entasis, always found in classic work, but never in any subsequent styles. They are also twisted in a style like Roman work,—an example of which from San Paolo is before us. In the diagram I have also given a parallel between the ordinary

classic pilaster and that at Repton. So early is the appearance of this crypt that many have thought it actually Roman, but the simple inspection of the capital, as well as the groining, will show the impossibility of this being the case.

If we look at the outside, our reasoning must be this: as circular and triangular arches used together—and with balluster columns—seems an undoubted mark of Saxon architecture, as is proved by the MSS., and as these are found in execution and in conjunction with strip pilasters—and as these again are found as distinctive marks in Romanesque both in Italy and Germany in the eighth and ninth centuries—I think it is not too much if we consider the architecture of the exterior clearly long antecedent to the Conquest; and if we look at the interior and see architecture older clearly than any Norman, and yet clearly not classic Roman, surely we cannot be blamed if we pronounce this to be part of the old Saxon church. Let the advocates of the opposite opinions remember there is no instance of strip pilasters, balluster columns or triangular arches, in any building which chronicle or charter will prove to be Norman.

Here, perhaps, rested the bones of the great kings of Mercia—here reposed the ashes of the great Saxon saints — here perhaps the Danes caroused through the long winter nights after the conquest of Repton, and before their dreaded incursion into the south—here stood the priory founded by the piety or internal fears of the Norman earls—and here, till the dissolution, were the Secular Canons, whose exertions and learning almost recompensed all the evils that have been attributed to the wealthy monk or importunate friar.

ARTHUR ASHPITEL.

REMARKS ON THE FORM, TREATMENT, AND APPLICATION OF THE DOME IN MODERN EUROPEAN ARCHITECTURE.*

On the subject of the proper style and character of the surface decoration of the dome there are natural objects that are very suggestive, only we must take into consideration, and make due allowance for, the difference of size: small objects are dependent on their decoration chiefly, large ones on form, which must not be cut up or injured by decoration. Some delicate embroidery-like ornament that would not interfere with or distort the general curvature of its surface, or disturb the breadth of its repose, would be the most proper. The ornament much used in great works, consisting of a multitude of square deep coffers placed within each other (the object of which would seem to be to make a very small rosette suffice for the decoration of the centre), is a very senseless one in any form of ceiling, and is particularly inadmissible in the dome: it interferes with the general surface until it is lost to the eye altogether: it looks liney, and produces no shadow in any broad or effective manner. The exterior curvature requires the same care: a calm and beautiful repose of light and shade is the great characteristic of the domical surface, and this must be preserved at whatever restraint of the hand of decoration. On the exterior, an unbroken surface, without ribs or dormers or projections of any kind, perfectly smooth, or relieved only by a net or scale-like covering, would, I believe, be greatest in effect. Its beauty is in its spherical curvature, and in the softness of light and shade which it is calculated to produce. Moreover, the meridian-like ribs so much used in great domes are only appropriate on those surmounted with lanterns, to which they converge. Spherical ceilings are, however, susceptible of much variety of sculptural embellishment: they might be appropriately decorated with subjects from the vegetable and animal kingdoms, which might be partially or wholly tinted; but it requires no great effort of judgment to perceive that historical subjects, either in painting or sculpture, so placed, excepting around the base for a few degrees up where they would be nearly perpendicular, are an irrational decoration: some very fanciful and aerial subjects, comprising imaginary beings, genii, or the like, might be admissible in theatres, saloons, &c.; but grave, historical subjects, however artfully foreshortened and disposed for being seen from below, can never look natural, and are improper for such a position; though some subjects, as the Ascension, Transfiguration, and the like, are less objectionable than others. The objection has most force in reference to flat ceilings, but neither on domes nor on vaulted or any other form of ceiling can historical painting be considered proper; and the grand subjects of Correggio and others had been better elsewhere. Neither should a dome or other ceiling be painted to represent the sky. The carved ornaments of the timber-roofed churches representing angels as hovering over the heads of the congregation, formed a beautiful and significant decoration, as it symbolized the highest heavens; but an imitation of the starry sky, though used symbolically, is, I think, an absurdity in a feature the chief object of which is to shut out the sky and excite ideas of comfort and shelter from the weather.

Much of what I have advanced will, I know, sound like heresy, if not apostacy, to many, and I may be deemed presumptuous in arraigning the merit of such works and men; but pure taste and enlightened judgment must, I think, mainly concur in such views, which would not tend to cramp design or clip the wings of imagination, but to guide them into right channels, and secure to their productions, under the sanction of reason, a higher and more satisfactory beauty. We can have infinite variety within the limits of rational design; and the revived architecture of the ancients requires not to be swept away, as some of its physicians would rashly prescribe, and which, indeed, it never will be, but to be purified, refined, ennobled. The most admired buildings in this style are grossly impure, and in no respect more so than in the treatment of the dome; and if the besom, not of destruction, but of correction, were to pass over the domes, not of London only, but of Rome and Paris, and clear away the lanterns, models, and toys that now disfigure their summits, a magical improvement would result in the eye of every genuine devotee of the beautiful and true. If their architects had worked from within outwards in planning their works, and were guided in their general arrangements and choice of form by a desire to obtain the fittest and most beautiful interior, no such features would have appeared, and very different would have been the form and application of the cupola. In all good and true architecture the general form of the exterior follows that of the interior, and is its true expression.

It is quite possible, by adding false and useless features to the essential shell of a building, to make the exterior more sensuously beautiful, *i.e.*, more pleasing to the uninformed eye; and this has too often been done; but its intellectual beauty, is defaced by such treatment: the mind does not approve it; and in reference to the subject under our more immediate consideration, the question must involuntarily arise, why a dome should be shown on the outside that has no relation to the inside, as in St. Paul's, London, and in several of the Parisian churches. If true proportion and beauty require a dome to be placed at a certain elevation inside, that elevation must be the most proper outside, and will be most satisfactory to the inner eye.

When a building is truthfully conceived and faithfully executed, perfect in constructive and proportional grace, we can neither add to it nor take from it, without injury: the veins of life will run through every limb: every part will breathe: addition will be an incumbrance and deformity, subtraction a mutilation and destruction.

It might be pleaded, in reference to some of the false structures to which allusion is here made, that the extension of the cylindrical wall upwards, and the weight of the carpentry of the outer dome, secure abutment to the inner one, as does the brick cone to the inner dome in the ingeniously contrived cupola of St. Paul's; but this is an insufficient apology for their introduction, and does not excuse the falsity of the arrangement, which inevitably detracts from their artistic merit: they are, however graceful, misconceptions, or, at least, impure conceptions: they depart from art in proportion as they depart from truth, which invariably calls for fitness and propriety, and requires a strict correspondence in architecture, as in all else, between interior and exterior. Now, the most beautiful form with which we could crown the intersection of two great naves is, I would humbly suggest, the pendentive dome. Constructive advantages are perhaps in favour of the cross vault, but the former is the most beautiful; and had the centre of the cross in the great churches to which I have referred been covered immediately by it, like that of St. Sophia and the Turkish mosques (which present, perhaps, the grandest interiors in the world), instead of having the pendentive spandrels merely to form the circular base for the upspringing tambour, greater unity would have been achieved, and truer proportions; for the height would have been in due subordination to the other dimensions, and the whole interior effect would have been more noble and satisfactory.

But if we could forget their incongruity, the absence of interior proportion, and the rest, and view them simply as external features, they would yet be far from satisfactory in the eye of taste: the man of pure art-feeling, and sound art-judgment, in contemplating such objects as the circular domed temples of St. Paul's Cathedral or Greenwich Hospital, must feel a secret regret that they had not, after the manner of their Roman prototypes, been built upon the ground, where they would not only look vastly larger and more important, but where, enjoying a more natural position, they would be infinitely more beautiful, besides being of actual use as chapels, libraries, or what not. Placed where they are, such objects have no adequate meaning: no idea, or only a false one is embodied, for most of the miniature imitations of these structures have no interior, or visible available inside, but are merely exterior objects. Now, I believe that no great limb or main feature of a building, such as a tower, should be erected for mere outside show; and I believe also that we might have an equal or greater amount of external decoration if the features devoted to it were made to administer at the same time to interior beauty and use; *i. e.*, that the money spent on steeples, containing nothing, might have been so employed as to produce an appendage to the edifice not only yielding an equal amount of beauty on the outside, but gracefully useful within. With the Gothic spire I meddle not: the governing principle of the style is an apology for it: in the Gothic Church it is in the midst of pointed finials, and all is aspiring together; but the classic column supporting an entablature has no meaning, and therefore no business, up in the air; and the cost of the two or three tiers of columns and spire above our revived Roman churches would have erected a single peristyle, crowned by a dome, of twice the diameter. The rationality of the nineteenth century must, I think, lead to reformation here, and we shall outgrow these senseless practices in architecture; practices tending to please the eye whilst offending the judgment, and which are calculated to bring the whole style in the eyes of the indiscriminating into unmerited contempt. Unmerited,—for the capabilities of the architecture of the ancients cannot, I am convinced, be estimated even from the most celebrated examples in existence: there has, I suspect, never been an adequate amount of real artistic genius applied to it in modern times. In our greatest buildings it has been misapplied,—in temples as well as in palaces. In many of the great palatial edifices of Italy, in still more of the French ones, it has been the bubble of fashion, the creature of affectation: formality and falsehood—the evidence of sacrifice to mere pomp of exterior decoration have everywhere stamped themselves in gigantic deformity. In the greatest works they have been made to administer but to a meretricious pomp, a conventional stateliness,

"Decency and custom starving truth."

See p. 540, *ante*.

In our temples of religion it has fared no better: than in the pontifical church at Rome,

"To which Diana's marvel was a cell,"

there is, perhaps, in no building embodied a greater amount of ignorance or neglect of the principles of the style adopted. Conventionalism, in short, has been its bane: the architects did not build on ideas, nor withdraw their inspirations from nature, and we cannot expect the classic elements to assume artistic compositions under such circumstances, —from the hands of architects who hid, or sought to hide, by gorgeousness of decoration the want of art. I conceive of the revived Greek and Roman architecture as of a flower in its bud that has yet to blossom; of its beautiful elements, as links of music that will yet evolve

"Their grand consummate hymn."

Samuel Huggins.

PERILS OF HOLBORN-FOOT.

Amongst the metropolitan improvements which have been carried out of late years, few can be said to have been otherwise than urgently called for; yet if theso necessary had been taken in the order of their urgency, there is one which would, long ere now, have stood to our credit as a thing achieved; while perhaps one or two others might still have been, not shelved, but ordered to lie on the table, for the sake of its accomplishment: I refer to the long-desiderated viaduct across the valley of the Fleet.

The observant pedestrian, in passing down Holborn-hill, and approaching Farringdon-street, cannot fail to have his attention attracted to the difficult and perilous nature of the vehicle-traffic in the steep portions of this busy thoroughfare; indeed, his feelings of compassion for the poor horses are enough to suggest to his mind the necessity for some remedial measure being adopted: but to the outside passengers on omnibuses, or the occupants of open cabs, the scenes and experiences here must often be of a very alarming kind; while those who have the charge of heavily-loaded waggons are not to be envied for their difficult and onerous task: in some seasons especially, danger is most painfully apparent.

To many of the more modern inhabitants of London it may be unknown—although in looking at the locality with a geographical eye they would probably take it for granted—that underneath the hollow which lies between Holborn-hill and Snow-hill, a stream, rendered sluggish by its foul burden, runs, or perhaps rather *settles* (glacier fashion), to the Thames. This, now the great Fleet ditch, was formerly the Fleet river, and more anciently, the River of the Wells,—receiving, as it did, various limpid waters, as it meandered from its source in the high grounds at Hampstead-heath, by Kentish and Camden towns, St. Pancras old church, Battle-bridge, Bagniggewells, the House of Correction, to the hollow behind Mount Pleasant, Warner-street, and Saffron-hill, and so to the base of Holborn-hill, where it received the waters of the "Old Bourne," which, pent in its tunnel of brickwork, now constitutes Holborn sewer. After the Great Fire of 1666, improvements were made upon this river; and it presented a canal, crossed by four bridges—at Bridewell, Fleet-street, Fleet-lane, and Holborn, and which was navigable by barges, from the Thames up to Holborn-bridge,—having 5 feet of water at the lowest tides, and quays 30 feet broad on either side. Time was, when vessels had borne their freights much further up its stream; and an anchor has even, it is said, been found as far up as the vicinity of Battle-bridge. Its ultimate sphere of usefulness, however, fast grew upon it: in 1732, it was unanimously voted, in its uncovered condition, a nuisance; and by 1764 its course, even to its mouth, was arched over, and it was thenceforth dedicated altogether to Cloacina and Mephitis. Talk of the *Pons Asinorum!* it would be a puzzle rather to discover now either the bridges or the course of that once gurgling rivulet, on whose banks our aldermen's forefathers, who, in the time of William Rufus, were probably frugal swains, may have fed their flocks and herds; and as for its title of "Fleet," its claim to it is no longer appreciable in any sense of the term.

My subject having reference to supra-terranean operations rather than to such as I have just touched upon, these brief details will therefore suffice to convey an idea of the underground nature of the main portion of the site; and it need just be remarked here that, on viewing the locality transversely as regards the direction of the trunk line, it will be found that the street surface at Holborn-bridge has already been *raised* as much as it conveniently can be; and the summits at Hatton-garden and St. Sepulchre's tower are also *as low* as they well can be; so that nothing but a distinct line of roadway will effect the radical reform which is necessary to get rid of the excessive gradients with which vehicle traffic has to struggle between these two hills.

That some striking change is indispensable in the great main thoroughfare of Holborn and Newgate-street, between the two points just named, has forced itself on public attention for many years; and the following summary will show what propositions have been advanced for the cure of the evil complained of,—some of them highly approved:—

In 1828, Mr. T. F. Taylor proposed to carry an iron suspension-bridge from the corner of Hatton-garden to near the Saracen's Head Inn, in Skinner-street; the roadway of which was to be level, and of sufficient width to admit two carriages abreast; and the footpaths, and nearly all the houses, to be left undisturbed. (Estimated cost, 23,000*l.*)

In 1833, Mr. Turner proposed to construct a viaduct upon brick arches along the south side of Holborn-hill and Skinner-street, from Thavies' Inn to Seacole-lane; requiring the taking down all the houses on that side from Shoe-lane to Farringdon-street, while others of more modern date were to be raised: the arches of the viaduct to be made available for warehouses opening from that portion of the line which retained its original levels, or rather acclivities. By a subsequent modification of the plan, the street was to be increased to 70 feet wide, the viaduct being 35.

In the same year, Mr. Moseley proposed to raise the ground at Holborn-bridge 12 feet rendering necessary the alteration of houses at the bottom of the hill.

In 1836, Messrs. Barnard and Geary proposed to construct a viaduct on the north side from Hatton-garden to the upper end of Snow-hill, requiring the removal of the greater portion of the buildings between these two points. (Estimated cost, 350,000*l.*)

In 1838, in the Metropolitan Improvement Committee's Second Report, appeared a proposition by Mr. Pococke, for a viaduct on the south side, from St. Andrew's-court to Seacole-lane.

In 1840, Mr. Moseley proposed in addition to his scheme of 1833, to lower the summit of Holborn-hill 18, and that of Snow-hill 12 inches, so as to reduce the gradients to 1 in 35.

In 1841, Mr. Galloway proposed to erect centrally in the line of road, a viaduct 30 feet wide upon iron arches, for horses and carriages only, from Hatton-garden to the Saracen's-head inn; the street to remain below, but widened where requisite.

In the same year, Mr. Moon proposed a plan nearly similar to that of Mr. Turner, only insisting on a greater width of road.

[Of the merits of Mr. Stead's registered project, referred to in letter and leader of The Builder, vol. 4, p. 541, and also at p. 586, further than that it is a viaduct (estimated cost 170,000*l.*), and supposes a toll of a half-penny on pedestrians and equestrians using it, a penny on omnibuses, cabs, chaises, chariots, and taxed-carts, and three-halfpence on carts and waggons, I am unaware.]

The above are independent of various propositions in 1833-5, &c., for making new streets or viaducts, distinct from, and not being improvements on the Holborn and Skinner-street line, but in lieu of such. These would seem to view the proper dealing with the present line without interfering with the property along its sides (excepting that they would have destroyed its value) as being impracticable. Both Mr. Taylor and Mr. Galloway, however, have indicated that the case can be dealt with without being open to material objection on that score; and I think the former only erred in proposing to adopt the suspension principle upon a curved line of way, and the latter in contemplating too great a width.

The width between the houses being say 50 feet, at the narrowest part,—the roadway between curbs being 30 feet, and footpaths 10 feet each, if the viaduct were made the whole width of present roadway, in accordance with Mr. Galloway's plan, it would not only come into offensive proximity to the houses on either side, but difficulty would be created at the terminations, in obtaining passage for the cross traffic into and out of the streets of the lower level; for the height of the required viaduct being at Farringdon-street about 30 feet, and a narrow one being desirable, it becomes obvious that its use must be confined to the eastward and westward traffic, which at the present time seems to be quite nine-tenths of the whole that takes place at this confluence; and therefore there must be preserved or formed at the ends of the high-level way, sufficient passage for such portion of the low level traffic as does not merely cross underneath the viaduct, but passes up or down alongside of it, either in its eastern or western end: were a viaduct erected the full width of the present roadway, this passage at the ends would have to be accomplished by means of something like a circus at each,—requiring the purchase, sacrifice, and rebuilding of property.

Any plan for raising the line of street bodily, and the houses along its sides with it, although perfectly practicable, must involve so serious a cost as to form a hopeless barrier to its accomplishment; and any plan to raise but one-half of its width, whether along the north or along the south side, leaving the other half to still dive down with its present steep incline, would, I conceive, be unsatisfactory,—the low line being mean by reason of its narrowness, even if shops instead of warehouses occupied the brick arches which supported the high one; and when it is proposed to increase the total width of the street above to 70 feet, in order to afford to this low line passage for two lines of vehicles, what between the cost and the sacrifice, a *total* raising becomes equally feasible, while it would be more consonant to the taste of the age. To those who are acquainted with the city of Edinburgh, such a thing as two streets crossing each other at levels differing much more than would be the case here, is easily understood; as well as the appearance of the houses at the intersection, which are double the usual height: the main difficulty to the working is the obtaining passages parallel with the high level for vehicles from the low one to reach it by.

The central viaduct scheme, for vehicles only, is evidently by far the most tangible,—not a suspension one, where ample support can be conveniently obtained throughout its length from below, and where, supposing it were desirable, it would have to be in several spans, in consequence of the curvature; nor yet one the full width of the roadway, to bring omnibus outsiders staring into people's one-pair and two-pair floor windows, and rendering the low-level vehicle traffic difficult and dangerous; but a narrow one, so as to facilitate the latter, and sustained by direct support.

Such a viaduct, formed solely for the great eastward and westward traffic, should be laid with two pairs of tramways; one pair for the line of vehicles running east, the other for those running west,—the central space narrower than those gauged for vehicles, or otherwise disqualified for use: its width need not exceed 19 feet between the railings: these should be lofty, if not necessarily for security, at least to give the fullest feeling of it to timid passengers. The lines of support below should be so near to each other, say 11 feet from centre to centre, as to divide the 30-feet roadway into three nearly equal parts, and leave good gangways for vehicles between them and the footpaths.

For the construction of such a viaduct,

modern practice would suggest many modes of treatment by which lightness and stability could be combined; but certain enough, brick piers and arches would be as unnecessary as they would be undesirable: with an increasing traffic it would not be found that any of the space underneath was useless, or that such obstacles as brick piers would have been otherwise than inconvenient and dangerous: round cast-iron pillars, for the supports, would therefore be found to be the best adapted to the purpose in form and material; and iron beams would be less inconvenient than iron arches where the platform joined the inclines. To the right and left of the line of Farringdon and Victoria streets, spaces might probably be spared in the centre as cab stands; but in the extreme ends, where the platform of the viaduct joined the inclines, and the wedged-shaped space beneath terminated, public halting-places might be formed with advantage.

Centrally, in the length of the viaduct, or where it was intersected by the Farringdon and Victoria street line, an enlargement of a circular or other form in the plan, might be made as a station for omnibuses taking in passengers,—stairs being constructed leading up on both sides from the low level.

It will be perceived that the scheme here indicated could be carried out without touching a building, a foot-path, or even a curb-stone. As regards its effect upon the contiguous property, I think it is equally evident that, when once the viaduct was completed and working, that could not be deteriorated, but would more probably be enhanced in value; especially in the lower parts, nearest Farringdon-street. The inconvenience during execution, too, need be but very temporary; since the work would be of a kind which could be almost wholly prepared before the fixing of any part was proceeded with. This Holborn-hill nuisance, therefore, which has been a source of such grievous complaint for many years, and which, so long as it lasts, must keep on increasing, is by no means the formidable difficulty that its continued existence would seem to imply. When I went to the spot recently, on purpose to view it with reference to the subject of its improvement, there seemed to be but one rational mode of dealing with it—by a central viaduct; and when I subsequently made inquiries as to what had been already proposed, it was with some satisfaction that I found the same idea, though different in the treatment, had suggested itself to two previous projectors.

JAMES WYLSON.

THE EXHIBITION OF SKETCHES AND DRAWINGS BY ENGLISH ARTISTS.

THE promoters of this exhibition, encouraged by the success that attended their first efforts (though not in a pecuniary point of view), and by the ready manner in which their invitations were responded to by artists, have opened their second exhibition in Pall-mall East, and present to public inspection a very interesting collection of studies, extempore sketches, transcripts from nature, first thoughts for pictures, and careful bits of detail.

There is always a charm in sketches (a freshness in first impressions lends its aid in their execution), not to be found in the more matured and highly-wrought pictures, and they make one on more intimate terms with the artist. Some characteristic studies by Mr. John Lewis (five in number) attract immediate attention. The individuality and truthfulness of (134) "Roman Peasant Boy," and (137) "Roman Lady," are as admirable as the expression of (143) "The Greek Primate, Therapia," and (140) the exquisitely-painted head of "Lord Viscount Castlereagh." These, with (146) "A Lady of Rank," are fine examples of delicate and elaborate finish in water-colour portraiture.

(22) "The Opera Box," by W. P. Frith, A.R.A., is a gem of first water: the figure lovely and ladylike. (35) "Anticipation," A. L. Egg, A.R.A., is powerful in colour and painted as only few can paint. (25) "Capuchin Convent at Amalfi," (31) "The Bay of Monaco," (130) "Martello Tower, Mentone—Evening," (136) "St. Remo, Gulf of Genoa, Santa Croce, in Gierusalemme," and (264) "Amalfi, from the Convent," by Mr. Cook, chiefly painted on the spot with photographic truth; are interesting as correct delineations. (36) "The Lily," J. J. Jenkins, is a pretty study. (40) "The New Novel," H. O'Neil, carefully painted, but wanting in refinement; and (87) "The Lily of the Valley," E. M. Ward, A.R.A., are personations in which their several styles are to be discriminated.

Mr. F. R. Pickersgill is advantageously displayed in his water-colour sketches. (69) I. "Angelica delivered from the Sea Monster," Ariosto—II. "Sabrina descending," Comus—and III. "Frolic." The composition of "Sabrina" is exceedingly beautiful, and all denote great knowledge of the resources of colour. The sketch for his (84) "Rinaldo destroying the Myrtle Tree in the Enchanted Forest," is a covetable reminiscence of his fine picture.

Mr. Hook, A.R.A., exhibits his sketch for "A Dream of Venice" (240)—very suggestive of the Venetian masters; and his study of a Female Head (81) still more forcibly illustrates how effectively he has adapted their style. The first sketch for Mr. Cope's (R.A.) "Fresco of Griselda" (287) is a highly-finished drawing, and exemplifies the care and attention exercised on his subject.

The correctness and sound judgment apparent in Mr. Mulready's pen and ink "Sketch" (274) prove how unremittingly he must have worked to acquire his certainty, and his chalk "Sketch" (285) shews how grace and science combined assist in making the simplest material interesting.

Amongst the studies for pictures are (164) "Sketch for a large picture," illustrative of English poetry, by F. Madox Brown, the centre compartment of which all that have visited the last Academy exhibition are acquainted with. Mr. W. Cave Thomas's (11) "Study for a large picture," from the Evangelist (Mark), chap. xiii. as well as his (142) "Sketch in oil for the compartment of Justice," House of Lords, deserve careful attention. (93) "Samson in Captivity," E. Armitage, is clever though unpleasant.

(125) "The Sentinel," R. Hannah, a well-painted head; and (126) "Signor Don Sancho Panza, Governor of Barataria," a drawing made with seemingly great facility in pen and ink, by J. Gilbert, are remarkable. (238) "Grace" and (244) "The Trial of the Sword" are better specimens of Cattermole than (260) "Amy Robsart."

(222) "Sketch for the Picture of the Bourgeois Gentilhomme," W. P. Frith, A.R.A., has the qualities and general appearance of a *bonâ fide* picture, whilst (266) "La Fleur's Departure from Montreuil," vividly recalls one of Mr. E. M. Ward's most charming performances.

(252) "Lateral View of the Portico of the Great Temple of Edfou," (255) "Entrance to the Great Temple of Aboosimbool, in Nubia," showing the first period of Egyptian architecture of the time of the Pharaohs; and (268) "The Portico of the Temple of Edfou, in Upper Egypt," showing the second period of Egyptian architecture of the time of the Ptolemies," are three of those Eastern studies with which the name of David Roberts, R.A., is so closely associated: in pleasing contrast, his (258) "Church of St. Bavon at Haarlem," showing the great organ; and (262) "Interior of Kelso Abbey, Roxburghshire," are depicted with that adaptive and perceptive skill for which he is justly famous.

Mr. Stanfield, R.A., has (96) his "Study for the Picture of Salvator Rosa; (131) "An Interior of Chepstow Castle; and (267) "The Great Tor," to represent him. Mr. Hart's (276) "Interior of the Sacristy of St. Mark's, and (279) "Great Council Chamber in the Ducal Palace at Venice," are, with (241) "The Palazzo Cornaro Spinelli, Venice," of Mr. Lake Price, sparkling and clearly-defined studies of interior. Mr. Holland's Turner-like (230) "Venice," and richly-coloured "Realto," have afforded him an opportunity of revelling in the prismatic rays. (280) "The Lake of Albano and Castle Gandolfo," and (281) "Cottage of Hampstead Heath," by Mr. Linton, remind one of ancient masters.

Conspicuous amongst out-door sketches are (145) "A Study of Boats," very fine, by T. Creswick, R.A.; Mr. Duncan's (75) "Cottage at Dawney, near Windsor," and (129) "Study in Knowle-park," (95) Red-hill Common," C. Davidson; (127) "In Houston, Renfrewshire," W. L. Leitch; (98) "Sketch from Nature, at Margate," George Richmond; (132) "Two Sketches made at Hastings," Frank Dillon;" (43) "Dunstanborough Castle, Coast of Northumberland," (53) "A Salmon Trap on the Lledder, North Wales," and "A Water Mill, near Caernarvon, all by J. Wilson, jun.; (159) "Earlswood Common, Reigate," C. Davidson; and Mr. Jutsum's (169) "Mile-end Ferry, near Henley-on-Thames." A careful drawing in chalk, by Mr. T.. Webster, R.A., of (184) "An Old Dame;" two masterly charcoal sketches, (62) "Introduction," and (67) "The Assault," by Mr. Tenniel; (192) "Grapes," George Lance; (210) "Pineapple, &c.," V. Bartholomew; (215) "Poacher on the look-out," and (229) "Duck Shooting," by Mr. Ansdell, are amongst those that attract attention. Nor must we forget the elaborated and Dutch-looking interiors of Mr. Hardy (273 and 284), transcribed with much patience and aptitude; or the graphic memoranda of Mr. C. Landseer, R.A., (72) "Entrance at Knowle," (99) "Scene in an upper Apartment," likewise at Knowle, and (259) "Staircase at Mayfield," or the masterly studies in oil, (70) "An Italian Pilgrim," and (100) "Pifferari," by Mr. Carl Haag, or a charming drawing by Topham, (128) "Highland Bridge," or the careful studies of flowers (76 and 90) by H. O'Neil.

James Godwin has three drawings, (28) "Music," (189) "An Episode from the History of the Plague" (a sanitary fire, with crowding wretches), and (198) "A Provision Merchant during the Plague of 1665," which will help to build him a reputation.

The several names of Linnell, Copley Fielding, G. Fripp, Callow, Clint, Bennett, Gastineau, G. E. Hering, Leitch, Duncan, Allen, Dodgson, Davidson, T. M. Richardson, Branwhite and some others, are appended to works of considerable excellence.

PRACTICAL METHOD OF CONSTRUCTING THE REGULAR PENTAGON, OR FIVE-SIDED POLYGON.

SIMPLE and practical methods of describing polygons of any proposed number of sides are of very great use to individuals who are in any way connected with the building arts, as erections of various polygonal forms are frequently made the objects of contemplation and design, and are sometimes brought forward as prominent and conspicuous embellishments to a group of buildings.

Now, ready and expeditious methods of delineating polygons, even although these methods should be only approximative, must be of considerable importance to practical men, and it is chiefly on account of the great utility of the methods here given, that we have been induced to put them into such a form as the readers of THE BUILDER may readily comprehend and put in practice, when cases of the kind offer themselves for consideration.

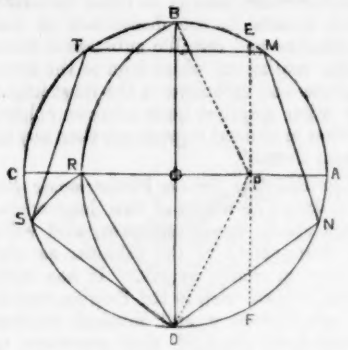
The simplest of polygonal figures is the equilateral triangle or *trigon*; the next the equilateral rectangle or *square*, of which the methods of construction are well known, and for this reason we need not take any further notice of them here; but some of the polygons of higher orders are not so easily constructed, and short approximating methods of easy remembrance and application are here given for the use of the practical architect and mechanic.

PROBLEM I.—*To construct a regular pentagon, or a polygon having five equal sides.*

The problem, as here enunciated, is proposed in a general way, without any limiting condition whatever as regards the length of the side, or the description of it in or about a given circle; but when the figure has once

been formed according to the method here given, any other conditions can readily be complied with; but the present construction inscribes the figure in a given circle.

CONSTRUCTION.—Describe the circle ABCD of any convenient size at pleasure, the diameters AC, BD being at right angles to each other. With the same radius or extent of the compasses, set off AE and AF in both directions, making the arc EAF equal to 120 degrees: draw the chord EF intersecting the diameter AC in P the centre of construction for the pentagon.



About P as a centre, with the distance PB or PD as a radius, describe the circular arc BRD, intersecting the diameter AC in the point R: draw DR, and about D as a centre with DR as a radius, describe the small circular arc RS to meet the circumference of the circle in the point S, and draw DS; then is DS the side of the pentagon required, which being set five times round the circumference of the circle, will mark out the polygonal figure or pentagon DSTMN.

This is a very simple and elegant method of describing a pentagon or five-sided figure; but it may be proper to remark, that it determines the side of a regular decagon or ten-sided figure at the same time; for the central distance O R, is the side of a decagon.

The method of construction here given is very well known to mathematicians, having been suggested by Ptolemy in the first book of his "Great Construction;" it is not however, so well known among practical men, and it is for this reason that we have thought it might be useful to bring it under their notice.

PRACTICAL CALCULATION OF THE PENTAGON.

From the simple nature of the preceding construction, we readily perceive that the side of a pentagon inscribed in a circle of given dimensions, admits of a ready numerical determination, from which its practical delineation is immediately obtained by scale and compasses thus, by a simple calculation, we find the side of the inscribed pentagon to be $s = \frac{r}{2}\sqrt{(10-2\sqrt{5})} = 1{\cdot}1756\,r$, in which expression the symbol r indicates the radius of the circle, and s the side of the inscribed pentagon.

This is a very simple expression for the side of a pentagon, and very easily put into practice; but the following rule in words will render the subject more generally intelligible to practical men.

RULE.—*Multiply the radius of the circle by the constant* 1·1756, *and the product will be the side of the pentagon, in the same measure as the radius of the circle.*

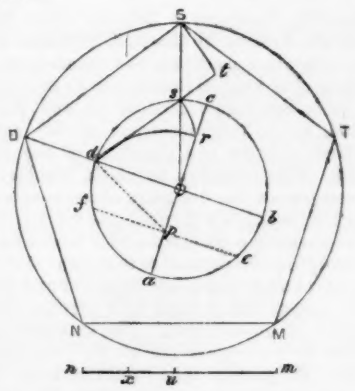
EXAMPLE.—A gentleman has a piece of ground of a circular form, 22 feet in diameter, on which ground he wishes to build a summer house in the form of a regular pentagon: what will be the length of the side outwardly?

Here the plot of ground is 22 feet in diameter, and consequently its radius is 11 feet; hence, by the rule, we have 1·1756 × 11 = 12·9316 feet, the length of the side required exteriorly, and this known, the length of the side interiorly, which depends upon the thickness of the wall, is easily determined.

PROBLEM 2.—*To describe practically a regular pentagon, or five-sided figure, the side of which shall be of any proposed length.*

The practical construction of this problem pre-supposes that of the foregoing; but since that is a matter of great simplicity, the labour of the solution is but little enhanced by it; in order, therefore, to render the solution complete, we shall endeavour to combine the two operations in one as follows:—

Describe the circle *abcd* of any convenient size at pleasure, and find *ds* the side of a pentagon as in the foregoing problem, which side thus found may be either greater or less than the given side. Take the difference between *ds*, the side of the pentagon found by the construction, and *mn*, the given side; then, if *mn* be greater than *ds*, set off *mu* equal to *ds*, and bisect the remainder *nu* in the point *x*; produce *ds*, the side of the first constructed pentagon, till *st* be equal to *nx*, and erect the perpendicular *t*S, meeting the production of the radius ⊙*s* in S; then, through the point S, draw SD parallel to *sd*, to meet ⊙*d* produced in D, and SD will be the side of the pentagon required.



Therefore, with the radius ⊙D or ⊙S describe the circle DNMTSD, and on the circumference thereof set off DS five times and join the adjacent points, which will form the pentagon required. If the side of the constructed figure should happen to be greater than that of the figure required, take the less from the greater and bisect the remainder; then, set half the remainder from *d* towards *s*, or from *s* towards *d*, and draw a perpendicular to meet ⊙*s* or ⊙*d*, and construct the figure as before.

The following, however, is a still readier way of determining the radius of the circle by calculation, and when the radius of the containing circle and the side of the pentagon are given, the figure itself is easily constructed.

RULE.—*Multiply the given side of the pentagon by the constant fraction* 0·85063, *and the product will be the radius of the circumscribing circle; round the circumference of which set the given side five times, and the pentagon will be completed.*

EXAMPLE.—What will be the radius of a circle capable of containing a regular pentagon whose side is 20 feet in length?

In the constant multiplier above given, the three right-hand figures are of very little value, and may be omitted in all practical cases, the first two places ·85 being quite sufficient.

Here, by the rule, we have 0·85 × 20 = 17 feet, the radius of the circle required.

ST. MARGARET'S, AT CLIFFE, DOVER.—Sir: There is an interesting old Norman church at St. Margaret's, at Cliffe, a village about four miles east of Dover. The eastern (?) doorway (a good specimen) was whitewashed a very few years since, and many of the ornaments (some of which are very curious) on the lozenges are nearly illegible from that cause. The double-toothed ornament is very curious, as is likewise the moulding nearest the door opening. The interior of the church has also been whitewashed, and many of the arch and other mouldings have been greatly damaged from this most absurd practice. The northern doorway has been preserved from whitewash, and is a much older and finer specimen than the eastern. Some of the ornaments are very curious (for instance, four or five death's heads on the eastern side). I do not know of any published illustrations of this old church, or of any of its parts.—T. A. B.

NOTES IN THE PROVINCES.

Norwich.—The church of St. Matthew, at Thorpe hamlet, designed, according to local papers, by Messrs. Brown and Kerr, was consecrated on Friday week. It is in the Early Norman style, and cruciform, with nave and transepts, but without tower or aisles. There is a semicircular finished apse for the chancel. The walls are built of Kentish rag-stone, with white brick dressings. In the decorations for the doors and windows the old English style of moulded bricks has been revived. There is a circular stone belfry at the west end, supported by corbelling on each end of the wall. The dimensions of the building are—extreme length, 79 feet; width, 28 feet; length of transepts from north to south, 61 feet; and width of transepts, 25 feet: the extreme height, from the floor to the roof, is 29 feet. The roof is of deal, stained in oak, and the fittings and furniture are of same material. The cost of the building has been 2,200*l.*, and a further sum of 1,000*l.* was raised for the endowment. Mr. Wornum was the contractor.

Framingham Pigot.—The church in this parish, says the *Norfolk Chronicle*, has of late undergone restoration at the expense of Mr. Plumer and Mr. Christie. The old belfry, which endangered the west wall of the edifice, has been removed, and a new bell turret has been erected at the angle of the wall, in a more secure position. It is a light open bell turret, with a new buttress. Mr. Kerr, architect, supplied the design.

Pickwell (*Melton Mowbray*).—With reference to some remarks lately quoted in our columns from a provincial paper, on the design of the chancel of the church here, lately repaired, a local correspondent remarks that as the chancel itself is not new, any reflection on the design of it is misplaced so far as recent works are concerned. These works were done with a sum of 175*l.*, recovered from the executors of a late incumbent who had allowed the chancel to become dilapidated. Our correspondent very properly remarks that "misleading the public, and inflicting injury upon tradesmen, by communicating to a newspaper upon such guess work information as that of the correspondent of the newspaper, mentioned, statements professing to be facts, but in reality fables, is a practice which can neither be too strongly condemned, nor too rigorously exposed."

Saltney.—The subscribers to the fund for the erection of a church and schools at Saltney, have resolved that a school to accommodate about 140 children be commenced forthwith, and that one-third of the funds already subscribed be devoted to this purpose. Mr. James Harrison was appointed architect. The Shrewsbury and Chester Railway Company have offered to convey the building materials along their line free of charge.

Knipersley, Biddulph.—A new church in the village of Knipersley, in the parish of Biddulph, Staffordshire, was opened on the 28th ultimo. It has been built at the cost of Mr. Bateman, and is in the Early Decorated style, with nave and transept, chancel, and tower with octagonal spire. The east window is of four lights, with tracery; the west of five lights, also with tracery. The chancel roof is of oak, and open to the rafters. The platform round the communion table is paved with black and grey marble, supplied by Messrs. Hall and Co., of Derby. The remainder of the paving in the chancel, and the whole of that in the nave is formed of flags of Hopton Wood stone, bordered with black tiles from Messrs. Minton and Co.'s. The building will be warmed by apparatus supplied by Messrs. Haden, of Trowbridge. Near the church is a parsonage in the Elizabethan style. There are also schools, with master's dwelling, and village library and reading-room.

Nottingham.—An ornamental fountain, from a design by Mr. Papworth, architect, is proposed to be erected in the market-place at Nottingham.——The gas company are forming two new gas tanks of very large dimensions. They will each be 120 feet across on the outside, and 93 feet, when finished, in the inside. On the outside they will be 24 feet below the

surface, and 5 feet 9 inches above, finished. They will contain about 100,000 feet of gas, when completed.

Leighton (*Welshpool*). — The foundation-stone of a new church has been laid here. It will be erected at the cost of Mr. John Naylor, of Liverpool, from designs furnished by Mr. H. Gee, architect, also, of a new hall and vicarage adjacent. The builders are Messrs. J. and W. Walker, Birkenhead.

Bolton.—Church Schools are about to be erected at Leverbridge, from drawings by Messrs. Sharp and Paley, of Lancaster, architects. They are intended to accommodate nearly 400 scholars, and will correspond in design and materials with the church and parsonage, which are built of Ladyshore terra-cotta. The whole cost of the schools is estimated at 1,000*l*., towards which Messrs. J. and W. Gray, of Wheatfield, have contributed 500*l*. The Earl of Bradford has granted the site.——Part of the premises forming the "White Horse" public-house fell on Tuesday week while some alterations were in progress, including the removal of a wall 10 or 11 feet long, which divided the kitchen from the bar, both at the back part of the building. The wall having been removed, a wooden beam of 10 inches by 8 inches was placed in its stead, below the ceiling, for the purpose of supporting the upper portion of the premises: one end of this beam gave way and fell to the floor, and immediately afterwards the ceiling of the kitchen lowered slowly about 2 feet, and then descended with a crash, the whole of the building above following, so that the upper part of the building, for ten yards in length, was destroyed in addition to the kitchen.

Preston.—The cost of the Preston Baths and Washhouses seems to have gone beyond what was anticipated. The council had already borrowed 9,000*l*. for their establishment, and they have just been called on to authorise the borrowing of 2,500*l*. more. This expenditure, according to a local paper, is wholly for the building and outfit. Exclusive of the site, the establishment at the south end of Liverpool is said to have cost only 2,300*l*., and it is thought that a like scale of expenditure might have been quite sufficient for Preston. Nevertheless it is believed that the establishment will pay. Up to 23rd ult., the returns for thirteen weeks have already been 214*l*., leaving 98*l*. for interest on loan, &c., after deduction of necessary expenses.

Newbury.—The Gas Company here have declared "a dividend of 5 per cent., payable on 10th October and 10th April;" and have announced their intention to reduce the price of their gas *to* 8s. "if a reasonable probability of increase sufficient to meet the reduction could be shown, so that the matter of reduction now rests with the public, as, without the increase, it cannot be done." As well might that prudent tar, who declared he would never take a dip into his own legitimate element, the water, till he had learnt to swim, have forthwith announced that the matter rested with the sea itself, as, without its instructive assurance that he *would* or could swim, it could not be done. Over cautious tars such as these, whether gas tars or maritime ones, are only likely to *learn* the truth in the brief interval between shipwreck and sinking: that is a moment, according to Coleridge and De Quincey, when flashes of mental light, more vivid far than gaslight, enter into even the darkest and most stupid souls.

Doncaster.—The spire of Christ Church, damaged by lightning, has been restored by Mr. Brown, of Sheffield, builder, without the erection of any scaffolding. A lightning conductor has also been affixed by the same tradesman.

Nairn.—A United Presbyterian church is about to be erected here from plans furnished by Messrs. Mackenzie and Matthews, of Elgin, architects. The estimated expense of the new building is from 900*l*. to 1,000*l*. It is to be erected in an open space adjacent to the High-street, and is to be in the Norman style of architecture, and capable of containing about 1,000 persons. The doors and windows are circular-headed, with mouldings running all round. The principal entrance is a large arched opening, 12 feet wide and 15 feet high, sub-divided by a pillar into two arched doorways. Immediately over this entrance there are three windows, surmounted by interlacing arches. This front is furnished with an octagonal belfry with square base, supported by corbels projecting from the wall. The interior finishings are to be American pine timber. The building materials, it is said, are to be red sandstone for the walls, and white freestone for the dressings, mouldings, &c.

Miscellaneous.—The new police station at West Bromwich has been erected by Mr. Hartland, builder, from plans by Mr. Smith. ——The foundation stones of two Roman Catholic chapels, about to be erected at Coughton and Studley, were laid on Wednesday week.

FOREIGN ARCHITECTURAL AND ARTISTICAL INTELLIGENCE.

Sanitary Movement in Belgium.—The Board of Public Health in Brussels (*conseils supérieur d'hygiène publique*) has decided on the holding of a hygienic congress, at the time of the next September festivals in the Belgian capital, under the presidency of M. Liedts, minister of state and chairman of the above board. This congress, to which, besides several notabilities, the delegates of the committees of public health are invited, has for its object to determine the most necessary works for the salubrity (*assainissement*) of the towns and rural districts, and to point out practical and efficacious means for putting into practice the intentions of government. The superior board has invited the governor of the provinces to indicate the persons who would be most fit for that important and useful mission. The following is an outline of the *programme* issued by the *conseil supérieur* of Brussels. The delegates to the hygienic congress have to deliberate on the measures most effectual for insuring the successive execution of all the works of public salubrity deemed necessary, and for guaranteeing the proper employment of the local funds as well as other subsidies granted to these works. The hitherto existing regulations consisted principally in the nomination of local committees of public health, headed by the superior board appertaining to the department of home affairs; the attribution given to the commissaries of cleanliness (*commissaires voyers*) to direct and superintend the works of public salubrity in the country districts; the establishment of a general inspection of the service of public health, the compiling and circulation of instructions and drafts of regulations relating thereto, and which had become the groundwork of many useful local enactments; in fine, the arrangement and disposal of the public grants demanded by the local administrations. These measures have not been unproductive. A great number of sanitary works have been executed or projected of late, and the "considerable improvement in the sanitary condition of the working classes, in districts thus acted upon, is a fact of general notoriety." Still some grand and universal measure can only be expected from final centralisation. The programme concludes by stating the different questions which will be laid before the sanitary congress, amongst which there are several relating to the modes of *coercion* to be resorted to against those civic (*municipal*) bodies who would be behind in, or even averse to, carrying the beneficial measures of government into execution, sacrificing, then, as it would seem, the welfare of the majority of a nation to the paltry interest of a few sordid and rapacious individuals.

Balneary Affairs, Paris.—We extract the following from one of the Paris periodicals:—"As the establishment of public baths has impressed a new feature on one branch of our social institutions, the researches connected therewith are elucidating this subject every day more and more. Although for the healthy and vigorous any bath may be similarly beneficial, it has been found, of late, that bathing-tubs lined with zinc will not act beneficially on persons labouring under nervous disease, the number of whom is very considerable. Copper-lined tubs will be better for debilitated constitutions; better still those made of iron glazed or enamelled. A new species of baths has also been tried, to which its originators have given the name of 'Artificial Volcanic Baths.' Besides their great efficacy, they are likely to benefit the owners of small iron furnaces, and the people connected with such works. A large lump of red-hot scoriæ is taken out of the furnace and plunged in the bathing-tub filled with water. The effect of the melted scoriæ and the grains of iron contained therein produced on the water is very great; so that even flames are issuing at times therefrom, all which results in the dissolution of many of the alkaline and metallic substances contained in the scoriæ, of which iron in the state of a sulphate and carbonate is the most important. The water acquires quite a brown colour, and is richer in mineral ingredients than any known natural therm."

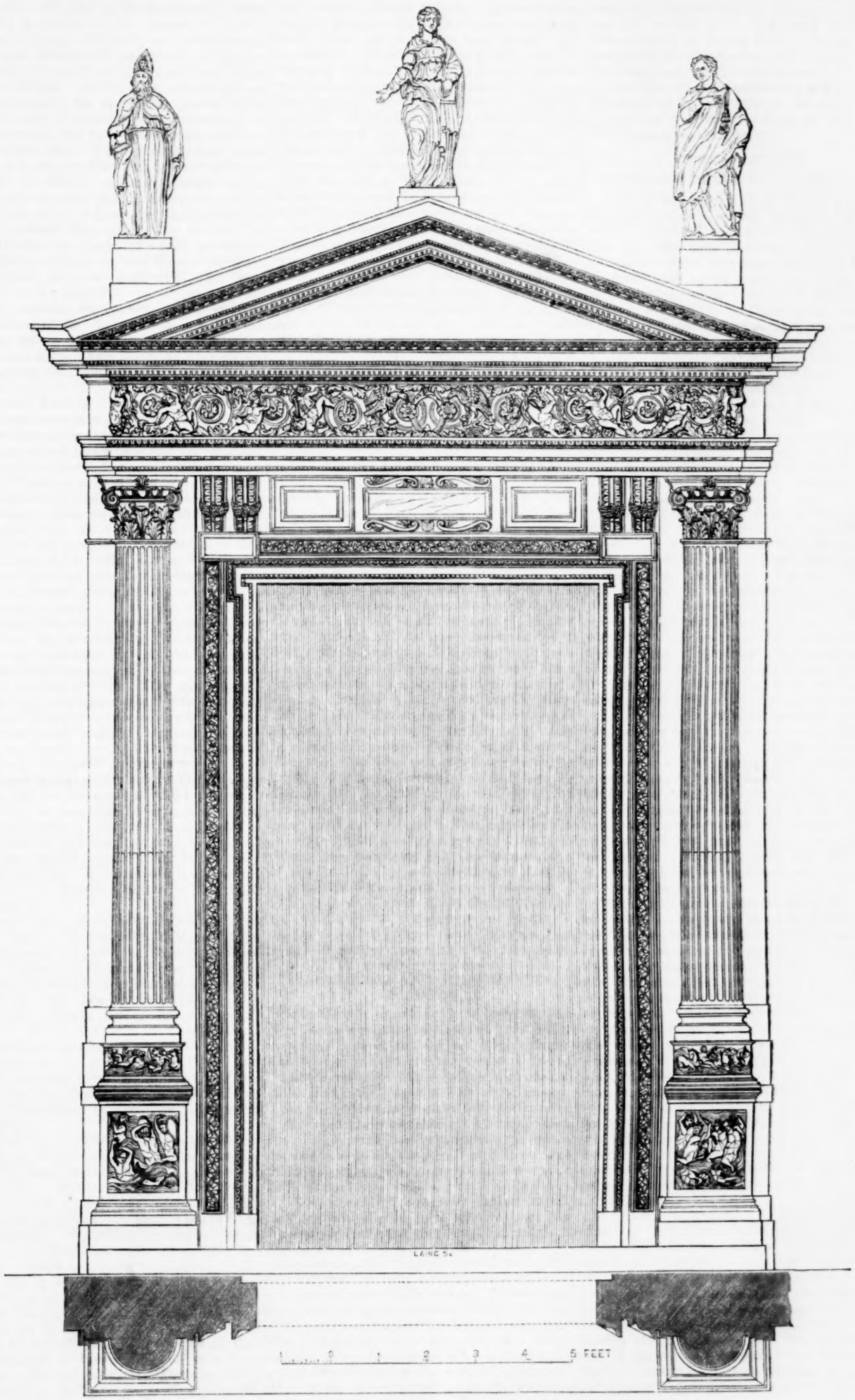
New Building for the Philharmonic Society, Brussels.—The works of this long-wished-for edifice are in active progress, and exhibit a fine arrangement of the saloons, as well for festivals as daily usages. It has appeared to be a general wish in the Belgian capital that the great literary and musical associations should hold some of their meetings in the open air, and the building of the Philharmonic Society is connected with a fine garden, situate, as it were, in the centre of the town, affording a commodious access to all parts of the building. If, as is proposed, a winter garden should be arranged here, the music could be heard from all sides of the locality, and in all seasons.

Aix-la-Chapelle.—The king has ordered that the great hall of the Hôtel de Ville, wherein many an emperor and empress have been crowned, shall be restored to its pristine splendour. M. de Cornelius has received an order for making the cartoon for a glass painting destined for the cathedral of Aix-la-Chapelle, to represent the coronation of the Virgin Mary. The picture will be 25 feet high; but as the huge window reaches a height of 80 feet by 17 of breadth, the remainder of the space will be filled up by golden stars on a sky blue ground.

SCULPTURED DOORWAY FROM THE CATHEDRAL OF CATANIA.

THIS very elegant doorway is on the northern side of the cathedral of Catania: it is of marble, and very beautifully executed. The mouldings are well profiled. It is dated 1577. Mons. Hittorff, in his fine work on the monuments of Sicily, thinks it must have been executed by the celebrated Gagini, but in that case, as he died six years before the date given, the final completion of the doorway must have been retarded by some circumstances. The introduction of the socle beneath the pedestal of the columns (not in good taste), leads to the inference that the latter belonged to some other monument, and were worked in.

APPARATUS FOR SUB-MARINE WORKS.—M. Cavé has presented to the Paris Academy of Science a memoir on a diving-vessel, of which there is now a model at work in the Seine, opposite the Institute. On the deck of a dredging steam-vessel a large chamber has been fixed, five metres high and seven metres broad. In the midst of this space is a circular opening, which passes through the vessel, and in which slides a cylinder, in the way of the joints of a telescope, reaching to the bottom of the river. The junction with the air-chamber is made by a slough of leather fixed at one end on the deck, and on the other to the extremity of the cylinder. If the tube be thus arranged, it suffices to compress the air in the chamber: the water then rushes off at the under sides; a portion of the bed becomes dry, and the workmen can move about with ease. A sort of ante-chamber, with two doors, and performing the functions of a sluice, allows access to the main chamber, without interrupting the work. The model now in operation on the Seine is but one of a reduced scale, compared with two made by M. Cavé for the works of the barrage of the Nile.



SCULPTURED DOORWAY FROM THE CATHEDRAL OF CATANIA.

[1577.]

YANKEE NEWS.

Bricks.—We find in the *Portsmouth Journal* (U. S.) a notice of the process of making bricks by steam practised at the establishment of Messrs. Woodworth and Moore, of Boston. The clay is ground up, pulverized, and bolted as fine as meal. In this state, entirely dry except moistening the moulds to prevent adhesion, the clay is turned into eight boxes of the size of bricks, and they undergo a pressure of six hundred tons. The machinery then raises the bricks and pushes them forward while the moulds are filling; and then another revolution produces eight more. Seven revolutions are made in a minute, producing fifty-six bricks, so hard when taken from the machine that wheelbarrow loads of eighty are packed up together without marring them in the least. The bricks, says our authority, come from the kiln with a beautiful, smooth, and straight surface, equal to any pressed bricks we have seen brought to our market. With this machine twenty men can make thirty thousand bricks in a day. There being no evaporation, the burning can be made with a great saving of fuel.

Artificial Leather.—A steam engine of six or eight horse power is erected at Abington, Mass., for grinding up the chips and shavings of leather which are cut off by the shoe and boot-makers, and which have heretofore been burnt or thrown away. These are ground to a powder resembling coarse snuff, and this powder is then mixed with certain gums and other substances, so thoroughly that the whole mass becomes a kind of melted leather. In a short time this dries a little, and is rolled out to the desired thickness—perhaps one twenty-fourth of an inch. It is now quite solid, and is said to be entirely water-proof.

Galvanic Printing Press.—A patent is being taken by a Mr. Foreman for a printing press, moved and regulated by galvanic magnets. His paper works upon a reel, and is continuous, like the telegraphic coil. The paper passes over the type on a cylinder, and when one side is worked the paper is reversed, and the other side printed with a perfect register, and the sheets are clipped apart as they come from the press by an ingenious contrivance. According to American authorities, "There is no limit hardly to the speed at which this press will work: its exactness is beyond anything known in this line of machinery; and, what is better than all, Mr. Foreman says he can put up the largest sized press at a cost of not more than 500 dollars." Mr. Foreman is a practical printer, and at present a citizen of New Boston, Illinois.

Boston v. *New York.*—The following statement of the relative wealth of Boston and New York has been circulated:—The population of Boston by the late United States census is 138,788: the real and personal estate as established by the late State valuation, is 213,310,067 dollars; making for each inhabitant of Boston the sum of 1,537 dollars. The population of New York by the United States census is 515,394: the valuation of the real and personal property, as ascertained the present year, is 320,108,358 dollars; making for each inhabitant of that city the sum of 621 dollars.

Art-Patronage.—The newspapers are calling on the States to give enlarged encouragement to art. The *Home Journal* says, in an article on the subject:—"Every State capitol should pay honour to the names that throw a special lustre upon the local sovereignty to which they have belonged. Something in this way has already been done—by none more than by Virginia. Years ago, while Washington lived, she secured a life-like impersonation of her great son, by sending to France for the services of Houdon; and the figure that now stands in her public hall at Richmond, is a treasure of memory and of art which all the other treasures of the world could not buy from her. She has lately, also, given an order to Crawford for a colossal group illustrative of the fame of the State—consisting of an equestrian statue of Washington, surrounded at its base by statues of six other Virginians—Marshall, Henry, &c. Besides the several States, it is an appropriate and legitimate object of the expenditure of cities to decorate the squares and public buildings with the figures of those exalted persons who, in past times, have made such cities the particular theatres of their reputation. Why has nothing been done in this way by New York? There once stood in the Exchange a statue of Hamilton, which was destroyed by fire. Why has it not been replaced? There ought to be in this New York of ours, upon the summit of a pillar, visible widely over the waters, a figure which should announce to the European that he is about to tread the land of Washington. There ought to be in our streets and parks statues to remind us all that we dwell upon a soil once dignified—for ever benefited—by the virtue, the learning, the ability, the patriotism of Hamilton, of Jay, of Schuyler, of Livingston, of Hobart, of Kent. If orders were given by our municipal and state authorities for works that are properly required for the adornment of our cities, and called for by the duty which the public representatives owe to the memory of the "great men" that "have been among us," our artists would find all the patronage that they could require, and art in this country would soar far beyond the level it has ever yet attained."

A Gas Engine to supersede steam.—The Cincinnati papers state that a Mr. Solomans, of that city, has invented a gas engine, which is to supersede steam. "With common whiting, sulphuric acid, and water he generates the gas. Five dollars' worth of these materials," says the *Nonpareil*, "will serve to propel a boat across the ocean half a dozen times, and if there be no leakage it will keep the boat in motion until it wears out. . . . The result is, that it requires 1,800 dols. of expense to run a boat from Cincinnati to New Orleans and back again, with the old engine, while this one will do the same work for 50 dols. Mr. Solomans has his engine in operation. It is of 25-horse power, and raises 12,000 pounds up and down five times in a minute. He has it so planted that its power may be seen. The engine is so constructed as to be self-sustaining, manufacturing and pumping its own gas, while a small furnace, almost half as large as a common furnace for heating flat-irons, furnishes all the heat he desires. A handful of charcoal does the work, and his boiler is about as large as a good sized cannon-ball." The carbonic acid gas engine itself is no great novelty: neither is this mode of generating gas. One main element of power in the present instance is heat, 20 degrees of which are said to give a pressure of 1,080 lbs., 40 degrees 2,160 lbs., 80 degrees 4,320 lbs.: that is, 132 degrees less than boiling heat gives a greater power with this gas than 452 gives by converting water into steam.

BLACKFRIARS AND WESTMINSTER BRIDGES.

IT is held, to be forewarned is to be forearmed. Now, come what may to these two great public structures it never can be said your columns have been closed against such warnings. In Mr. Walker's evidence taken before a committee of the House of Commons, July 1850, he says, "Supposing for a moment we have next winter, or any winter, a great mass of ice coming down the river, I would not be answerable it would not sweep away all the piles," and down with them the bridge (Westminster) would assuredly fall. Should that happen, what then becomes of Blackfriars? It has been further stated that the bed of the river in that part has lowered six feet since the last great repair: if that be so, let any one turn to the soundings accompanying Mr. Page's report in 1846, and they will then be fully satisfied the alarm now expressed is not without reason. Committees have been sitting at intervals during the last seven years; evidence of the highest character been brought forward; and this year a royal commission has been appointed doubtless with a view of considering the evidence produced before these commissioners, and yet nothing has been done: the apathy of public authorities is really surprising: two more important thoroughfares connected with the traffic of the metropolis there cannot be, and yet in the face of the evidence quoted, we must encounter the risk of another winter. It would almost seem the delay was for the purpose of carrying out the scheme of a temporary bridge at Westminster, or it may be in the hope of the bridge being carried away, and thus to compel the immediate use of Charing-cross and Vauxhall bridges, thereby habituating the people of Westminster to the change of traffic, and paving the way for the scheme of the double bridges suggested in 1846. A. Z.

ENCROACHMENTS IN ST. PANCRAS.

I PRESUME that the state of our principal thoroughfares is a subject deserving of your notice: therefore I beg to call your attention to the New-road and City-road, from Trinity Church eastward. For many years past I have observed with great regret the progressive encroachments on the gardens in front of the houses, particularly in those parts near the end of Tottenham-court-road, by the erection of shops, &c., close upon the footway; so that this once open thoroughfare is now contracted into the dimensions of an ordinary street; excluding in a great degree the air and view, and destroying its proper and distinguishing character as a kind of Boulevard.

The increasing value of the frontage for the purposes of trade is obviously the inducement to these erections, and it would be useless to urge against this *private* advantage the consideration of the *public good*: I had, therefore, observed and deplored the growth of this evil as uncontrollable, and without remedy. I was surprised, however, to find that it has been contemplated and provided for by express legislation. The Act 7 Geo. 4, for consolidating the metropolitan roads distinctly prohibits the erection of any building within 50 *feet of the New-road*, or within 40 *feet of the City-road, on any new foundation.* Unfortunately a subsequent Act transfers the management of these roads to the parishes through which they pass, since which this salutary provision has become a dead letter.

Such a result is not to be wondered at when you consider how the vestries are constituted; some of the members probably being the transgressors, and the majority unwilling to incur any expense in litigation: at all events, the fact is that these encroachments have been steadily advancing, and during the last year or two at a greatly increased rate; so that if some other authority do not interfere, the mischief will go on extending, until this once fine thoroughfare will be converted and degraded into an ordinary street.

Whilst such large sums are being expended in public *improvements*, widening streets, and creating new lines of communication, surely it is most inconsistent and unreasonable to allow this *counter improvement*, or nuisance, to take effect under our eyes, particularly when means have been provided to prevent it; but such is actually and unfortunately the fact.

Some years ago it was proposed to buy up and remove the public-house which projects so awkwardly at the corner of the New-road, and Hampstead-road; but now it is become only one or part of a mass of obstructions, too large to be *bought*, and being illegal, ought no longer to be tolerated. I hope, Mr. Editor, that you will assist in arousing the public to the assertion of their rights: then I have no doubt that they will prevail against the apathy or private interests of the local authorities.

F. B. A.

It may not be irrelevant to advert to a specimen of *parochial* administration, as now exhibited to the annoyance of the public in a part of the New-road. The wood pavement has been allowed to become so bad that a barricade was erected, and her Majesty prevented from passing that way in her progress to the Great Northern Railway station; and it still remains closed, without even the *commencement* of repair! At the same time it appears that the vestry have been making an abortive attempt to *extend* their jurisdiction over the roads and pavements by a Bill to supersede the whole of the seventeen boards of commissioners by whom they are at present managed, with the exception of the New-road, and some other portion of small extent.

WOODWORK FROM THE CHURCH OF ST. GEREON, COLOGNE.

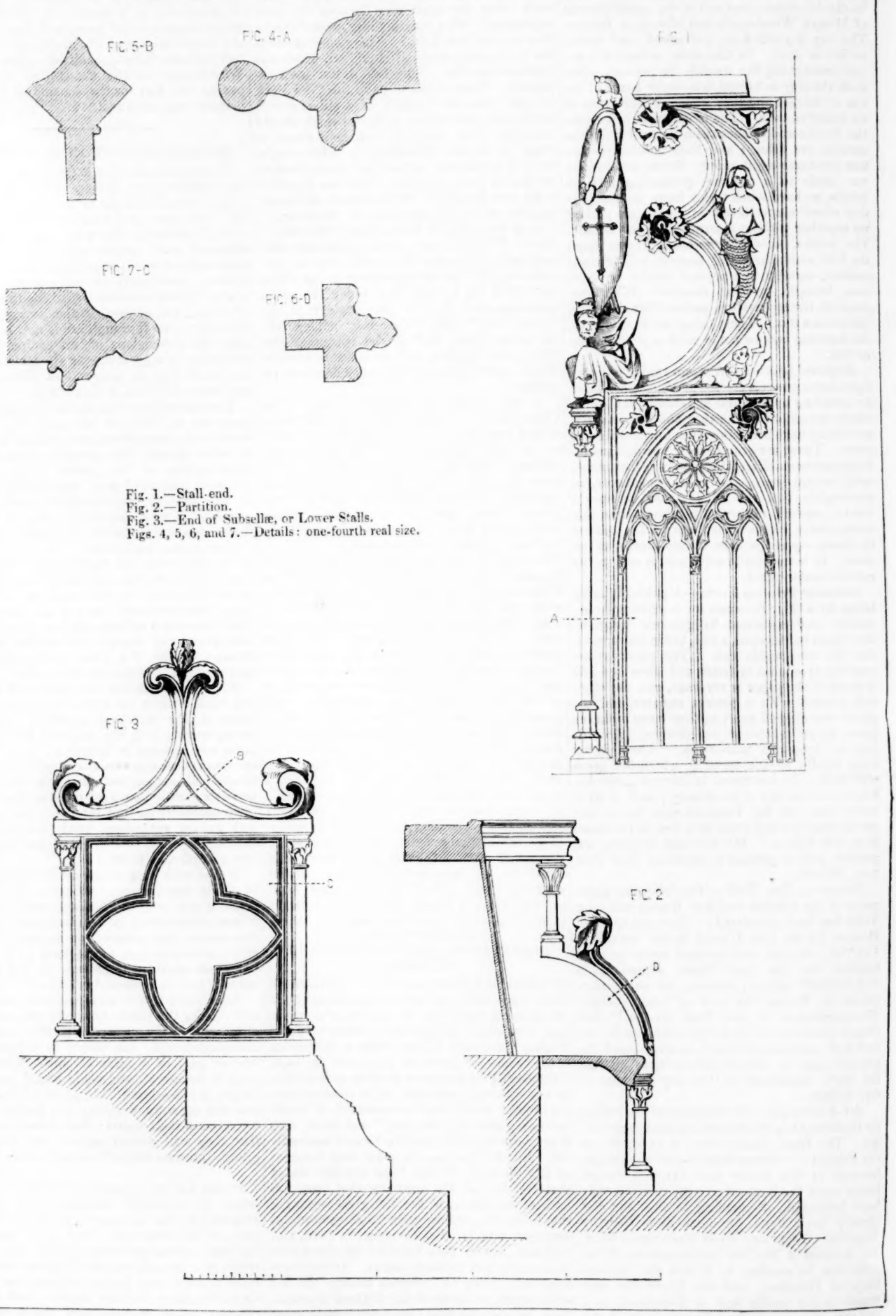


Fig. 1.—Stall-end.
Fig. 2.—Partition.
Fig. 3.—End of Subsellæ, or Lower Stalls.
Figs. 4, 5, 6, and 7.—Details: one-fourth real size.

WOODWORK FROM THE CHURCH OF ST. GEREON, COLOGNE.

THE church of St. Géreon is a fine and remarkable specimen of the Continental Romanesque, or Byzantine Architecture. Externally, its lofty polygonal nave, and the slender eastern towers, have an imposing appearance; and, internally, the effect is equally grand, marred, however, by an ornament introduced apparently in the sixteenth or seventeenth century. The skulls of 700 martyred soldiers, who, it is related, suffered in the earliest centuries of the Christian era, are preserved in little gilt niches, or arranged in glass cases. The choir is raised about twenty steps above the nave, and terminates in an apse. The stalls are arranged on either side, and have subsellæ, but are not returned. Of the stall ends there are four. The others differ only in the carving from that here given. In one, instead of the armed figure on the

shoulders of a king, is a crowned female figure on a knot of foliage. The other two have sitting figures. Of the ends to the subsellæ, or lower stalls, there are eight examples, all differing in the carving, but similar in form. The stalls are without canopies, and are probably of the fourteenth century. H.

DREDGE'S SUSPENSION BRIDGE.

A CORRESPONDENT says,—"The report of the failure of the Dredgeian bridge, across the river Leven, Lochlomond, which found its way into most of the public journals some time ago, was incorrect. The fact of the case was simply this:—the centre links of one of the main chains broke in consequence of a flaw in the iron, and the *unnecessary use of centre links* in the bridge. But notwithstanding all this the traffic was continued, and, without interrupting it, Mr. Dredge has since removed the centre links of the other main chain, which has effected an improvement, and makes it substantial and inflexible. This was the second large bridge erected under the patent in 1841; and it is the only instance of fracture in all the bridges the patentee has erected. Indeed, how seldom is it that an approximation to truth is arrived at in the first or second attempt of carrying out any important thing in mechanics (the steam engine, &c. to wit), but often from the smallest accident springs the most useful discovery, which in this instance was of so trivial a nature that it did not even alarm the persons who were upon the bridge at the time the links broke."

We will take this opportunity to mention that a "Description of Suspension Bridges on Dredge's Taper Principle," has just now been issued by Messrs. Young and Co., which will enable those who may have occasion to erect suspension bridges to examine into the merits of the system.

LODGINGS FOR WORKMEN.

RESPECTED FRIEND,—The manifold treatises on *model lodging-houses*, from time to time published in thy print, have much gratified me and others who, like me, are associated for the prevention of cruelty to animals; for thy disquisitions, begun now some years back, have found an echo in the press at large; and it hath become fashionable to patronise and advocate such institutions.

Our society in favour of quadrupeds hath done much in favour of silent suffering since its establishment some twenty years back; but until thou didst raise thy voice, no society was ever formed for the abatement of cruelty towards bipeds—I mean the human animal. There are grievances and woes more cruel than flagellation, and the more sensitive animal, man, intended by the Creator to inherit the earth, and to have dominion over every living thing, is the creature doomed to endure those refinements of suffering! The beast is protected by law from merciless wails: the same law protects from *violence* by blows the rational animal; but hitherto (in what may be called the infantine state of humanity) the law hath had little effect in correcting "man's inhumanity to man."

It irketh me to reflect upon the many, as yet, unredressed evils under which our fellows in community still labour; and that these evils should be, and actually are, more unredressed if not unmitigable in a nation like ours, the most civilized, the wealthiest, and, shall it be said, the most Christian!

Of these, the chiefest is the want of suitable habitations, and those comforts that our state of social advancement requires. There are poor who have not always been poor,—what is their condition when driven to the exigency of lodging a family in two rooms?—what, then, if reduced to *one* room?

Every human creature is primarily entitled to the free and unrestricted enjoyment of God's great elementary endowments—*light*, *water*, and *air*. This is conceded by all who have treated the subject, for the argument is irrefragible: therefore it is the duty of every government, of every municipality, in the first place to assure to every living subject the free exercise and enjoyment of these natural gifts: they are shed abroad upon creation, and should no more be made the media of taxation than the breath of the nostrils. There are, however, in our adventitious state of existence in crowded cities, rights as indispensable as they, and one of them is the right to a *fitting location*.

Thy descriptions of model lodging-houses show that the sense of the time is moving in the right direction: that of St. Pancras is, indeed, a model amongst those first founded, and it is devoutly to be hoped that those proposed for the new thoroughfare, Victoria-street, will be worthy of the designation of that great conduit, and of our excellent and virtuous Queen. But, most worthy Editor, I would suggest to thee (what one of thy correspondents, "Quondam," hath before stated in THE BUILDER), that living-rooms for the poor ought to be had and provided for them at a rate not exceeding 1s. per chamber (including accessories) per week.

A poor working man, or a mechanic with 20s. a week, and family of only *three*, can barely afford that sum: add to it 1s. 6d. for fuel (the least possible allowance), and 6d. for soap, and but 15s. remain to meet all the requirements of food and clothing, not to mention casualties and sickness.

The poor were from the beginning, but their position in a capital, and amongst a community of unparalleled wealth and luxury, is immeasurably more galling, as only their *extremest wants* are at all remediable.

It is well for the pious and charitable to devote money to the construction of lodging-houses, from which they derive 5 per cent. profit, and more than 5 per cent. is returned by investment in model lodging-houses: still it would be better if partly *eleemosynary* gifts, and partly invested capital, were dedicated to these objects, restricting the returns on borrowed funds to 5 per cent. In such case, suites of four chambers of fair dimensions might be rented at 3s. a week.

From a computation made by me on the average rents of houses (in one tenement) it is clear that 5*l.* per chamber (of large dimensions) is the proportion ordinarily paid:—for example, a six-roomed house with decent and commodious adjuncts, may be rented for 30*l.* a-year—an eight-roomed house for 40*l.*—a ten-roomed for 50*l.*—and so on: such commonly have curtilages and even gardens: this amounts to 2s. per chamber per week for highly-finished mansions. This computation only relates to houses of the ordinary class, and not to first-rate situations; for such positions will often bring four times the value of the structure in rent.

As a large part of the first cost of a house arises from the high finish, external ornamentation, and internal decoration,—so plain dwellings, of a substantial character, with moderately proportioned, plain, and wholesome apartments, might, in proportion to extent and number of chambers, be erected so as to let for much less.

All structures of this kind should have a kitchen in each suite, with other requisites (as in Paris) to preserve the privacy and segregation of each family: at the same time, other establishments suitable to single persons, such as that of Bloomsbury, might secure increased comfort and economy, perhaps through the general purveyance of one kitchen and one cook.

No one can fail to admire the pretty evidence of poor habitations in Hyde-park: the security from fire, neatness, ventilation, and compactness reflect credit on the good prince who hath made the condition of the poor his study. Whether he designed them or not matters as little as whether he personally designed the Great Exposition: it is enough that royal patronage bestow on such matters their care and regard,—yet would I put it to thee, friend editor, whether this sample be not a toy, too expensive in construction, as also too stinted in capacity: thou wouldst not like a sleeping room 9 feet by 6 feet—but one step from the bed to the wall: besides, the height is deficient. These might suit a rich man's park grounds where expense could be of no moment.

TABITHA QUIET.

THE RIGHT OF THE CONTRACTORS TO THE COMMISSIONERS OF SEWERS TO CONSTRUCT DRAINS, AND CHARGE FOR THE WORK DONE OVER THE CONTRACT PRICE.

WHITECHAPEL COUNTY COURT—(TUESDAY).

DETHICK *v.* GRENIER.

The plaintiff in this action is a builder and contractor to the Commissioners of Sewers for the eastern division of the metropolis, and the defendant is landlord of some houses in Chapel-court, St. George's in the East. The sum sought to be recovered was 7*l.* 7s. 1d.; and defendant had paid 2*l.* into court as sufficient for the work done.

Mr. Fisher, solicitor, appeared for Messrs. Dethick, and called Mr. Alder, who said he was principal clerk to the plaintiffs, and took instructions from the defendant to make a drain through a passage leading into a court. The contract was to be 2*l.*, and whilst making the drain the men unexpectedly opened into a disused cesspool. The case was laid before the Commissioners of Sewers, who sent their clerk of the works, and who ordered them to go lower. Upon doing this it was found the next house was giving way. At this time they had sunk 10 feet according to the surveyor's orders, but upon finding the accident they rose, and were obliged to fill the cesspool up. Had been a great many years in the employ of contractors, and could positively state that the charge made was below the cost. They were obliged to act up to the instructions of the officers of the Sewers Commission, and could not deviate from their levels or courses of drains. Mr. Grenier had offered him 2s. 6d. to fill in the cesspool and not report it to the commissioners.

Two of the contractor's workmen deposed to the necessity of sinking the drain, in consequence of finding the cesspool, and further said that the defendant had repeatedly said he would pay all expenses.

Mr. Cox said that he held under lease the adjoining houses of defendant, and that he represented to the Commissioners of Sewers the nuisance of defendant's houses from want of drainage: in consequence of this the drain was ordered to be made by their contractors. His house had not yet done settling, and as defendant had no right to the passage, he should look to him for any damage he had sustained, and not to the contractors.

Mr. Grenier said it was entirely from want of skill on the part of the contractors the increase of work had occurred. They excavated too low, which brought the walls down. Instead of 10 feet deep, 4 feet would have been sufficient. He knew nothing of the cesspool, and considered the power of the Sewers Commissioners most arbitrary towards owners of property.

Mr. Reynolds said the defendant called him in to look at the job, and he offered to take it for 5*l.*, out of which he should have had to pay the commissioners fifteen shillings. He said he would do it for 4*l.* if "the Sewers" would assist, but he was told they would not under the circumstances. If their contractor did the work they would cleanse the drains, but not otherwise. Believes Mr. Dethick to be a large contractor for sewers. The power of the commissioners is so great that if a builder does not carry out their instructions he is liable to be fined 20*l.* The plaintiffs were bound to do what the clerk of the works directed. Thinks they went too deep.

Mr. Fisher replied and pointed out the responsibility of his clients, who had clearly acted up to the orders of the authorities.

His Honour said the practical experience of Mr. Alder shewed that no more work was done than was required, and he had no doubt if the Commissioners of Sewers had ordered twenty times the amount of work to be done the defendant would have been liable for the expenses. He must, therefore, order the amount sued for to be paid in a month. Verdict for plaintiff.

The court was crowded with builders of the East End, who did not appear to relish the judgment.

THE IRON TRADE.—Returns of the Board of Trade show that the export of iron, and especially of manufactured iron, continues to improve. The value of the foreign transactions in July was 531,014*l.*, being an increase on the same month of 1850 of 62,738*l.*—The Cradley chain-makers have struck for an advance of wages, or rather for a return to the higher prices they have till lately been receiving. It is expected that the turn-out will be general.

VICTORIAL STATUE AT GLASGOW.—Upwards of 3,000*l.* have been collected for the proposed equestrian statue of her Majesty at Glasgow.

Books.

A Treatise on the Substantive Law relating to Letters Patent for Inventions. By HENRY LUND, Esq., M.A., Barrister-at-Law. Sweet, Chancery-lane. 1851.

THIS is, strictly speaking, a law book, containing a full account of the present state of the law as regards patentable inventions, and professing to answer the following questions:—"What inventions can be patented? What are the nature and details of the contract which the inventor is said to make with the Crown? What are the essentials of a specification of an invention: in other words, What is the nature of the documentary evidence required to define and circumscribe the exclusive right to any patented invention? What considerations should be kept in view on the sale of, or other dealing with, Letters Patent? And, lastly, What amounts to an infringement of a patented invention?

The formalities preceding the grant of Letters Patent (as the author observes) will no doubt be shortly changed for some simple procedure; and the practice in actions for infringements, and in proceedings by *scire facias*, which belong to the general practice of the law, is also under revision. These alterations, as soon as perfected, will be added to this work in the form of an appendix.

As to the law of procedure, the author thinks that no change can be too great or decisive, provided it combine certainty with expedition: meantime, the present volume is designed to prepare for the consolidation of the substantive law, and to provide inventors as well as lawyers with a methodical and complete yet concise treatise on this branch of the law.

Elements of Spherical Astronomy, illustrated with appropriate Diagrams and practical Examples. By WILLIAM TURNBULL. Imray, Minories, London, for the Proprietor.

THIS laborious little work is designed to facilitate the application of spherical trigonometry to the calculation of astronomical and geographical problems. It comprises the stereographic projection of the sphere on the planes of the meridian, horizon, equator, ecliptic, and the equinoctial and solstitial colures, with tables of formulæ and rules for calculating the declinations, right ascensions, latitudes, longitudes, amplitudes, azimuths, and distances of the heavenly bodies; the times of their rising, setting, and culminating; with various other particulars interesting to students. The tables of formulæ from which the rules of calculation are derived are the same as those given in the author's "Treatise on Spherical Trigonometry;" and we know enough of the author and his labours, as indeed do many of our readers themselves, to be assured of their accuracy.

By the way, we may here incidentally remark that a new field for some fortunate mathematician to immortalise himself in appears to be opening up, not only in those doubts expressed by Herschel, Nichol, and other astronomical authorities as to the sufficiency of the law of gravitation to explain one of the most prominent facts in the mechanism of the solar system, namely, the circularity of form in the planetary orbits, but in various other defects of the orthodox doctrine, which could readily be pointed out. With reference to the former, we observe that in course of last week Professor Nichol drew particular attention to the fact in a lecture delivered at Liverpool and reported in the *Albion*. "Gravitation," he said, "was the great law of the solar system, but there were certain features of that system which the law of gravitation would not explain. There was the peculiar disposition of the planetary orbits, for example, which were all circular, or nearly so. The mere law of gravitation would equally have sustained them had they not been so. Again, they all moved round the sun in the same direction: gravity had nothing to do with that. This was also the case with regard to the satellites, *with the singular exception, however, of the planet Uranus.* Further, all the planets turned round on their axis in the same direction as that in which they moved in their orbits. The same law applied to the satellites. Here were a number of arrangements which required explanation." As to the Professor's own explanatory hypothesis, we are not a little surprised to find him, who smashed the nebular theory of the elder Herschel, picking up the fragments, and endeavouring, therewith, to reconstruct the solar system—and of course all other starry systems, made up also, as he himself conceives them to be, of suns and their satellites, something like our own. Whatever be the merits of this hypothesis, however, it is not the only one, neither is it the best, that is open to mathematicians, as could easily be shown were this the proper place to do so. Other questions will be found to be involved in the same explanation when the true hypothesis is worked out on mathematical principles: such is the question of the consistency of planetary matter itself, whether solid or only encrusted molten matter, a question to which recent observations on Saturn's rings add great interest: such, too, is the question of the true extent *and consequences* of the secular ecliptical changes, ranging widely as they do in the different planets, and capable as they seem to be of even affording geological explanations of an extensive order, if not also of converting geological into astronomical periods, a desideratum for which the Royal Society many years since offered a prize.

The Question of Unreciprocated Foreign Copyright in Great Britain; with notes. By H. G. BOHN. London: Bohn, York-street, Covent-garden. 1851.

THIS is a reprint, or at least a report, of the speeches and proceedings at the public meeting held at the Hanover-square rooms on July 1st, 1851, Sir E. Bulwer Lytton, Bart., in the chair. The great purpose of this meeting, and of the report of it here published, as well as of the energetic editor's notes, is the promotion of a law of international copyright: there may be different opinions as to the best mode of realising or enforcing such a law, but that authors ought, at least, to have as definite and permanent a property in their own writings as inventors have in their own patented inventions, is nothing but reasonable: if foreign nations, however, by first, or simultaneously, publishing their works in this country, take the benefit of our statutes, while in their own countries they plunder British authors without remorse, and allow of no such protection to them as they themselves enjoy here, the sooner they are made sensible, in some way or other, of the base iniquity of such practices, the better—for us and them too.

The Cottage Homes of England; or Suggested Designs, and estimated Cost, of improved Cottage Erections. By J. W. STEVENSON. London, 1851. Houlston and Stoneman.

IT is more consonant with our feelings, when we find a book to be what we cannot recommend, to let it pass by without comment, than to point out its defects. We should do so in the present case; but when we find the author stating of the various works that have recently issued from the press on "Improved Dwellings for the Poor," that "*the whole of them are deficient,*" and that his is to meet the want; and further, that he advertises to supply designs and superintend their erection, we feel it to be our duty, as well to those architectural practitioners who have spent time and money in acquiring a proper knowledge of their profession as to the public, to say that this work does not prove Mr. Stevenson competent to be a teacher.

The Paperhanger's and Upholsterer's Guide. By JAMES ARROWSMITH. London: Dean and Son, Threadneedle-street.

THIS little book is the work of a practical man of long experience, and contains much information that will be found useful by the young paperhanger, and, indeed, by some old ones too,—for unfortunately, through the slap-dash system of modern speculative builders, a number of men have been brought into the trade wholly ignorant of the business, and incompetent to hang paper properly. To such of these as feel their deficiency, and would do better if they could, we recommend Mr. Arrowsmith's inexpensive little guide, the chief fault of which is, that it does not go far enough.

A Glossary of Terms used for articles of British Dress and Armour. By Rev. JOHN WILLIAMS M.A. London: Pickering. 1851.

On the State of Agriculture and the Progress of Arts and Manufactures in Britain during the Period and under the Influence of the Druidical System. By Rev. JOHN JONES, M.A. London: Pickering. 1851.

THESE are mainly reprints from the pages of the Archæologia Cambrensis.

Miscellanea.

PLAN FOR EXTINGUISHING VESUVIUS.—The extraordinary results of Mr. Goldsworthy Gurney's operations on burning coal districts appear to have become transformed in Germany into the alleged formation of an English joint-stock company to extinguish the volcanic fires of Mount Vesuvius, and redeem its dangerous districts into valuable agricultural fields! The jest is a good one, doubtless; but it would have been still better, were it not the fact that the very agent whereby the alleged end was to be effected, namely, a canal of water, to be turned into the bowels of the mountain, is just that to which geological authorities attribute the excitement of volcanoes. Sir H. Davy explained their action by supposing that the interior contained such metalloidal substances as potassium, which actually burns and blazes in water, while decomposing it; and, although Sir Humphrey is said to have renounced that idea in after-life, we know that red-hot iron and other substances will also decompose water and produce explosions. Active volcanoes are generally near the sea, and blind or extinct ones where there is no access to water. Moreover, there is great probability that volcanoes are but vents to the fiery molten matter which is believed by geologists to constitute the whole mass of the globe, the crust of which, as represented in a diagram, for instance, in the "Penny Cyclopædia," and based on calculations of the increase of heat in mines according to the depth, is no greater in relative thickness than the shell of an egg is to the mass of the white and yolk!

A "GIGANTIC UNDERTAKING."—It is gravely proposed to erect a granite bridge, above two miles long, "with bazaars, shops, &c., and a covered colonnade," across the Severn at Black Rock or New Passage, to connect Monmouthshire and South Wales with the West of England and Bristol! So precious and scarce does building ground appear to be in that overcrowded district, that the very piers and abutments are to be made "habitable"—by the fishes we would have thought, were it not stated that it is in "the upper parts" only that these habitats are to be provided—for the gulls therefore it must be. But whence the twice two miles of shopkeepers are to come, much less their customers, we are not informed. Yet "a dividend of ten per cent. would be certain on the capital obtained," of the amount of which to be called for, however, we can find no trace, although it "would of course be very great," especially considering that the bridge is to be 140 feet wide, with a double line of rails and a common carriage road, and with arches of 324 feet span, rising 120 feet above the highest spring tides, so as to allow ships of the largest size passing at all times. The "shops, bazaars, and colonnade (with open and well-fenced promenades on their roofs at an elevation of 200 feet above low-water mark) may be constructed principally of glass and ornamental metals, after the manner of the Crystal Palace, so as to afford conveniences for the display and sale of artistical, manufacturing, and natural results of all kinds, thereby constituting a sort of permanent 'Great Exhibition' of the products of all nations—and for monuments and curiosities of every description—and the bridge itself, like the Glass Palace, would be the greatest monument and curiosity of the whole!" especially when the glass became as totally cracked as the "...antic undertaking" itself is, on "the whole."

BATHS AND WASHHOUSES.—The following is the London return for the month ending August 30th :—

ESTABLISHMENT.	BATH DEPARTMENT.		WASH-HOUSE DEPARTMENT.		
	Number of Bathers	Total Receipts	Number of Washers.	Number of Hours Washing, &c. &c.	Total Receipts
		£ s.d.			£ s.d.
The Model, Whitechapel	19,940	264 6 8	2,843	6,047½	31 3 11
St. Martin-in-the-fields ...	24,573	362 10 5	3,699	7,794	38 1 0
St. Marylebone	26,656	326 18 7	1,617	4,429	18 9 1
St. Margaret and St. John, Westminster	17,634	200 11 1	1,328	2,686½	13 9 3
Totals.....	88,853	1154 6 9	9,487	20,957	101 3 3

THE NEW PARK FOR FINSBURY.—We are told that this project is received favourably by the Government. The spot selected is equidistant from Regent and Victoria Parks. It is proposed that one entrance shall be at Highbury-place, and that the park shall commence at Highbury-crescent, passing along the right side of Holloway and Hornsey roads to the Seven Sisters-road, and (taking an easterly direction along this road until it joins the Green-lanes, and then proceeding south of these lanes) including all the space of fields to the west of Newington-green; afterwards inclining towards the New River, which it is proposed to cross north of the "Horse-shoe," excluding the Birmingham Junction Railway, and extending to the bottom of Highbury-grove, where a second entrance may be formed, completing the inclosure: thus the park will be bounded by four roads, without a public road passing through it. The park will cover an area of about 150 acres, and the estimated cost for the purchase of the freehold is 150,000*l.*

THE SMOKE NUISANCE.—GLASGOW.—We are glad to hear that a committee of the Glasgow Municipal Police Board for the abatement of the smoke nuisance, agreeably to instructions given at a late meeting of the Board, have appointed an "*Inspector of smoke*," whose duties will be to demonstrate the practicability of consuming sooty exhalations, and, in the event of smoke producers remaining obstinate, to bring them before the magistrates, who, under the provisions of the Local Act, have full powers to compel the removal of the nuisance. We must take this subject seriously in hand presently, for London.

GUTTA PERCHA TUBING AS A CONDUCTOR OF SOUND, &c.—The laws of acoustics are confessedly obscure: you have endeavoured to throw some light on them by able articles from your own pen and that of your correspondents: the following facts may be found useful as a slight contribution to the science. Some few years back, my hearing having become very defective and surgical aid being vain, I was compelled to have recourse to instruments to assist my hearing. To my very great disappointment, however, I found the benefit derived from them very trifling. I read all that medical men had to say on the subject, and tried all the various advertised instruments, but found them all alike defective on one point: the drawback was this, that although they certainly increased the volume of *sound*, yet what was gained in power was lost in distinctness. I then tried various experiments myself, and the result satisfied me that medical writers, in recommending the use of gong metal, bell metal, &c. for the construction of hearing tubes, were entirely wrong: excellent as they may be as the conductors of sound, they are decidedly the very worst *receivers*. Deaf persons find that however loudly the sound may be carried to the ear, yet there is no distinctness in it, the sound being massed together, the words running one into the other, and making, as it were, a *blot* of sound. I believe the cause to be this: all metals vibrate, more or less: the waves of sound striking against the mouth of the trumpet cause a slight vibration, and this continuous vibration is the origin of the indistinctness: hence all acoustic instruments should be of a non-vibrative substance, and this accounts for the property gutta percha has of conveying sound. But it will be found that it is not confined to gutta percha. It may, I think, be a question, how far the plan of hollow walls in modern buildings may affect the hearing, but that the fact of vibration, in addition to reverberation, being the undetected cause of failure in many buildings erected for various vocal purposes, I think may readily be believed.—

R. G. B.

PATENTED CONSTRUCTION OF ROADS AND PAVEMENTS. — A French gentleman, M. H. F. Marie de Pous, of Paris, has enrolled a patent in this country for the "combination of certain substances, and the employment of certain processes, applied to the construction of roads, streets, pavements, and ways, with, or for, the running of locomotives." The processes consist chiefly of spreading thin layers of material, such as ironstone in a granular state, and then watering and rolling, repeating the layers to the requisite thickness. In certain cases solution of sulphate of iron is used for watering, and the ironstone combined with volcanic schistus gluten. "The substances best suiting this formation of pavement are iron ore, in slate or stone, reduced to small pieces: granulated cast-iron, either broken or in chippings or shavings; iron or other metals, reduced to pieces or shavings; volcanic schistus, known as volcanic gluten, after having been subjected to the action of the fire, and pulverized and converted into cement; all cements and hydraulic limes; lime plaster, sand stones, iron drosses, slags, bitumens, asphalte, sulphur, sulphate of alumina, or alumina, and sulphate of iron, previously observing that the ground is macadamised and rolled, or otherwise hard pressed, to produce a sufficiently permanent and compact mass, to sustain the traffic of the road or way. In all cases the substratum of this character is required, as the material to form the surface is not applied in sufficient thickness to ensure its remaining perfect without a previously prepared permanent bed." The several combinations of materials, the patentee has described separately, as so many individual processes.

TO GET RID OF COCKROACHES.—Mr. Samuel Tewkesbury, of Nottingham, in a letter to the *Manx Sun*, says, "I beg to forward you an easy, clean, and certain method of eradicating these loathsome insects from dwelling-houses. A few years ago my house was infested with cockroaches (or "clocks," as they are called here), and I was recommended to try cucumber peelings as a remedy. I accordingly, immediately before bed-time, strewed the floor of those parts of the house most infested with the vermin with the green peel, cut not very thin from the cucumber, and sat up half an hour later than usual to watch the effect. Before the expiration of that time the floor where the peel lay was completely covered with cockroaches, so much so, that the vegetable could not be seen, so voraciously were they engaged in sucking the poisonous moisture from it. I adopted the same plan the following night, but my visitors were not near so numerous—I should think not more than a fourth of the previous night. On the third night I did not discover one; but anxious to ascertain whether the house was quite clear of them, I examined the peel after I had laid it down about half-an-hour, and perceived that it was covered with myriads of minute cockroaches about the size of a flea. I therefore allowed the peel to lie till morning, and from that moment I have not seen a cockroach in the house. It is a very old building; and I can assure you the above remedy only requires to be persevered in for three or four nights, to completely eradicate the pest. Of course it should be fresh cucumber peel every night."

ST. MARY-LE-STRAND.—The gallery is to be lengthened here, and various works, painting, graining, &c., are to be done. The following is a list of the tenders:—Crucifix, 350*l.*; Sykes, 334*l.*; Hurwitz, 330*l.*; Cull, 280*l.*; Macey, 269*l.*; Chesterman and Son (accepted), 228*l.*

THE MONUMENT TO GEORGE STEPHENSON.—The treasurer of this monument announces that he has received subscriptions amounting to 2,800*l.*, of which 250*l.* were contributed by 2,400 workmen. The *Daily News* advocates the erection of a strictly national monument in Westminster Abbey, to be paid for out of public funds.

DONCASTER WATERWORKS.—In response to the announcement offering 100*l.* for an approved plan of water supply from the river Dun to Doncaster, seventeen competitors have lodged their plans, which have been handed over to the corporation's consulting engineer, Mr. Alexander, for his report. In the interim the plans are also to be examined by the corporation.

THE SUBMARINE TELEGRAPH.—Captain Bullock is to make another attempt forthwith to lay the submarine telegraph from Dover to the most eligible place of communication on the coast of France.

TO CORRESPONDENTS.

"*Granites and Stones in the Great Exhibition.*"—We shall commence some articles on this subject next week.

"*Over Time.*"—A mechanic complains of employers allowing their men to work over-time when many others are out of work.

"W. W." "Honestas" (declined), "N. W." "D. W. R." "H. S." (an interesting drawing, but not suited to our pages), "C. H." (will find mention of the house in a previous number. With thanks, we are not disposed to engrave the view), "J. G." "J. B." Liverpool, "R. S. B." "B. and P." (we are happy to speak of improvements when we know them to be such), "Junius" (we will refer), "C. H." (shall appear), "W. A." (ditto), "John Bull" (it is a common practice, but strictly speaking is wrong), "S. R." "W. H. B." "W. P." "M. N." "H. W. P. C." "C. F." "A. A." (has disappointed us), "C. P." "C. H." "Messrs. H. and Sons," "F. D. P." (we will not open old sores), "Observer," "C. P." "H. S." (we are unable to refer), "C. B. A." "G. G. S." (shall appear), "P. S." (first letter referred to has not arrived).

"*Books and Addresses.*"—We have not time to point out books or find addresses.

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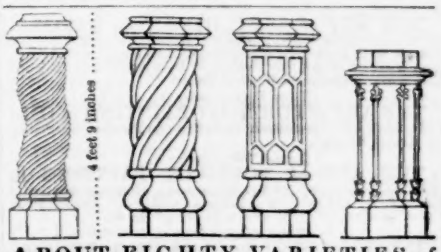

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from the Vieille Montagne Zinc Mining Company.—This Company having become Proprietors of all rights and patents of the late Patent White Zinc Company, in France and Belgium, is prepared to furnish, on a large scale, the WHITE OXIDE OF ZINC, in a pure state, and of a quality which can only be manufactured with the zinc from the mines in Belgium. Patent White Zinc Paint is superior, in every respect, to white lead paint. It is entirely free from all poisonous influences, and is unaffected by sea-water, sulphuretted hydrogen, or any gases; besides, it preserves its original colour, which White Lead Paint does not. White Zinc Paint causes none of those ravages, invariably engendered by white lead, upon the human frame; neither painters' cholic nor paralysis, &c. &c., to which dangerous complaints the workmen, who manufacture and use it, are subject, and to which persons who inhabit newly-painted apartments are also liable. A spurious article having been introduced in the market, under the name of White Zinc Paint, the public is cautioned against it, because, when adulterated, it becomes a very inferior paint, instead of a first-rate one.—For further particulars and prospectuses, apply to Mr. H. F. SCHMOLL, General Agent for England and Scotland, at the Company's Offices, 12, Manchester-buildings, Westminster-bridge; and for supply of material and prices, at Messrs. CHAS. DEVAUX and CO.'S, 62, King William-street, City.

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In justice to the proprietors these should not be confounded with the original, even though sold under the pretence that it is all the same.

HUBBUCK'S paint is entirely free from any injurious properties whatever, it is healthful in the manufacture, healthful in use, and healthful to occupants of rooms newly painted with it.

As a guard to the painter against the substitution of the inferior paints, each cask is stamped

"HUBBUCK, LONDON PATENT;"

and if the cask has not been been so marked, the reason is obvious.

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